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AN ANALYSIS OF WHEAT SUPPLY RESPONSE UNDER RISK AND UNCERTAINTY

(Working Paper 1/90)

E. J. Schaney

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(Working Paper 1/90)

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EXECUTIVE SUMMARY

The primary objective of this study is to appraise typical Saskatchewan grain producer supply response to price induced risk. A secondary objective is to quantify the major sources of farm income risk, price and yield, faced by typical wheat farmers on the brown soils. In general, risk does not aggregate well. Analysis of risk in the aggregate lacks the rigorous foundation underlying neoclassical economics. Moreover, when individuals are non neutral in risk attitudes, the traditional measures of producer welfare are meaningless and must be replaced by concepts such as the utility certainty equivalent price. Individual farmers are confronted with local weather variability. However, measurements of yield variability based on provincial or national yield averages tend to mask true yield risk faced by an individual due to the pooling effect associated with aggregation of data. In addition, the distribution effects associated with price stabilizing policies are important. Thus, a representative study approach is used to evaluate producer response to alternative generic price stabilization polices. Producer response to risk is evaluated at the whole farm level, not at the enterprise level; that is producers respond to variations in net cash income in planning seeded acres. Thus, posited supply response to stochastic prices becomes a function of the nature of the price distribution, risk attitudes, production costs and financial structure. In this model, supply response is based on the fallow/seed FLEXCROP decision rule. The FLEXCROP decision rule is based on a critical soil moisture threshold, M_c and actual spring soil moistures M_t; if $M_t \geq M_c$, then the producer would seed and if $M_t < M_c$, then the producer would fallow. A bio-economic simulator is constructed incorporating stochastic May soil moisture, M_t, and yield relationships and deterministic farm costs. By parametrically varying M_c, the optimal FLEXCROP decision rule can be found. Supply response, then, is based on adjustment of optimal cropping intensity to varying prices and risk.

If each producer were perfectly risk neutral, then each producer would choose the expected profit maximizing strategy. Consequently, the actuarially sound stabilization programs would have no production effect. However, producers were found to possess differing risk attitudes--at least at lower income levels. Three wheat producer clusters are identified: Cluster A-relatively risk loving (10%), Cluster B-relatively risk neutral (40%) and Cluster C-relatively risk adverse (50%).

Three price scenarios and four price policies are examined. The three price scenarios include 1) a middle price scenario with an expected wheat price of $181.23, the historical mean adjusted for inflation and technology; 2) a low expected wheat price of $141.93/t (historical mean - one standard deviation) and 3) a high expected price of $224.76 (historical mean + one standard deviation). Four alternative price stabilization programs are chosen, representing the free market with no government restrictions (no-price stabilization policy), upper and lower bounded prices (price truncation), and lower bounded prices (price insurance) and perfect price stabilization (fixed price). In each scenario the price coefficient of variation is held constant at 31% of the mean, historical average.

The net worth cdf of farm risk cluster is simulated for each FLEXCROP M_c strategy, price level and price policy. A total of 3 clusters x 9 M_c

strategies x 3 price levels x 4 price policies generates a total of 324 simulations. Given price level and stabilization price policy, each pair of the nine M_c strategies is examined for stochastic efficiency according to the representative cluster risk attitudes. The stochastically efficient set is M_c^* and represents the risk optimal choices to that farm risk cluster for the given wheat price and price policy combination. Associated with each M_c^* are optimal wheat acreage and production. In the case of multiple stochastic efficient M_c^* strategies, each efficient strategy is assigned the same weight and wheat acreage and production averaged. By parametrically varying wheat prices, production response can be mapped and the percentage difference over the benchmark profit maximization response determined.

General Implications. A number of general implications, findings and conclusions can be made.

1. Individual farm income distributions are likely to be non-normal. Even if both yield and prices are likely to be normally distributed, which is unlikely, their product is not normal.

2. While variance is commonly regarded as a measure of risk, it is an imperfect measure and possibly misleading when incomes are not normally distributed. Moreover, the purpose of many government programs is to deliberately change the shape of the income distribution. This means that traditional mean-variance analysis may be inappropriate.

3. Price stabilization without a corresponding yield insurance component is not a very effective tool in reducing income variation. For example, given a simlar coefficient of variation between price and yield (30-35% v 31%), the coefficient of variation of their product (gross income) is approximately 45%. Thus, if either price or yield variability is eliminated, gross income variability still remains at approximately 30%.

Risk Attitudes. General findings with respect to risk attitudes are the following.

4. At low expected prices, the Top Management survey indicated that approximately 10% of the sample show risk loving tendencies, approximately 50% of the sample show risk averting tendencies and the remaining 40% would show mostly risk neutral tendencies.[1] While this sample can not be regarded as representing the general farm population, it does question the almost universal assumption employed by economists that farmers are risk neutral or, alternatively, if they possess risk attitudes, they are uniformly

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[1] The difference between the two proportions is the inclusion of 0 (risk neutrality) within the risk aversion range. The smaller number excludes 0, while the larger includes 0.

risk averse.[2]

5. The constant risk aversion coefficient is not constant over income but declines. This implies that the absolute risk premium declines with wealth and wealthier producers would be willing to pay less for a given reduction in the standard deviation of income.

6. The relative risk aversion coefficient is also not constant over income. Farmers are far more likely to be risk neutral at higher prices than at lower prices. This implies that the proportional risk premium these producers would be willing to pay also declines in more favorable economic environments.

7. The implication of 3, 4, and 5 is that government programs which are based on risk-neutral behavior may seem to work well during times of high commodity prices, may not work nearly so well during times of low expected prices.

8. A general conclusion from varying risk attitudes is that risk lovers produce more and risk averters produce less than perfectly risk neutral producers under free market prices.

Acreage Response to Price Stabilization. General findings with respect to risk attitudes and supply response are the following.

9. Regardless of risk attitude, so long as risk attitudes are not **perfectly** risk neutral, farmers react to any mandatory stabilizing programs by producing more. Risk lovers increase output more than risk averters because of the slope of the tradeoff between expected income-risk. At low prices, impact of price stabilization programs is to expand production of risk averters to approximately the same level as PMAX (perfect risk neutrality).

10. Price stabilization programs only have impact on acreage response at low commodity prices. Wheat acreage supply response based on cropping intensity is very inelastic with respect to changes in risk; the maximum acreage response occurs at the lowest expected price scenario and is 3.1% to 9.1% over free market prices if all price variability were removed. However, more typical acreage response is 2 to 3%. The latter translates into optimal total farm production increases of 1 to 2%.

Risk Attitudes and Responsiveness to Price Changes Under No Price Stabilization. Using perfect risk neutrality or the profit maximizing model as the benchmark, the benchmark price elasticities of acreage response are 0.31 and 0.12, respectively, between low-mid and mid-high price intervals. This compares very favorably to other research findings. The corresponding

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[2] The selectivity associated with the participation requirements of the Top Management Workshops themselves means that the participants are not representative of the population as a whole.

price elasticity of wheat production is 0.14 and 0.05, respectively. General findings with respect to risk attitudes and supply response and no price stabilization policies are the following.

11. Using the low prices and PMAX (perfect risk neutrality), the benchmark price elasticity is 0.31, the corresponding price elasticities of relative risk lovers and relative risk neutral producers are 0.19 and 0.18, respectively; thus they are somewhat less price responsive than PMAX. Risk averters are somewhat more price responsive (0.35) than PMAX at low prices.

12. All risk lovers are less responsive than PMAX to price changes at high prices because they are operating at a relatively high production level and have rapidly diminishing total production.

13. If each cluster is weighted by its corresponding sample proportion and summed to give the aggregate response then the acreage responsive to price is 0.15 or about 50% of the PMAX of 0.31. Production response is about one-half of acreage response due to diminishing average yields.

Risk Attitudes and Responsiveness to Price Changes Under Price Stabilization. General findings with respect to risk attitudes and supply response and price stabilization policies are the following.

14. With respect to relatively risk neutral and risk averse producers, most price stabilization programs had little impact on acreage response to price even under lower prices. Risk loving producers became less responsive to price with price truncation, price insurance and fixed price (ranked in order of diminishing acreage responsiveness) primarily because they are operating at a higher production level.

15. In the aggregate, price stabilization programs tend to make producers less responsive to price, primarily because they are operating at a higher production level; with price truncation, price insurance and fixed price ranked in order of diminishing acreage responsiveness. At high prices, there is no significant aggregate acreage response to price.

Preferences towards Stabilization Programs. General findings with respect to producer preferences towards price stabilization programs are following.

16. If given a choice, risk lovers prefer a no price stabilization policy while risk averters would tend to prefer a symmetrical lower and upper price truncation program over the price insurance program.

Limitations

This study focuses solely on adjustment of wheat cropping intensity to expected prices on the brown soils of Saskatchewan; neither cross price effects, changes in input intensity nor changes in land base are allowed. The

problem of a single product is potentially acute with the dark brown and black soils of Saskatchewan. However, inclusion of alternative competing crops complicates considerably supply response under risk because all the various price-price, price-yield and yield-yield correlations must be considered.

Generalization to Other Saskatchewan Soils

It has been shown that risk averse producers are less responsive to price changes. It is posited that wheat acreage is likely to be more responsive to changes to wheat price and wheat price risk on the dark brown soil zone because there are more crop substitution possibilities than the brown soils. It is also posited that wheat producers will be less responsive to wheat price or price risk changes on the black soil zone even though there are other greater crop substitution possibilities because 1) canola which is the major alternative tends to be planted at the maximum and thus will be relatively unresponsive to cross price effects and 2) current cropping patterns include very little fallow leaving little room for expansion of wheat through greater cropping intensity.

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AN ANALYSIS OF WHEAT SUPPLY RESPONSE UNDER RISK AND UNCERTAINTY

CHAPTER I: INTRODUCTION

Most farm production and investment decisions are made under uncertain commodity prices, crop yields, interest rates, and government farm policies. According to Wilson and Eidman (1983), fundamental production decisions cannot be isolated from risk management considerations. Hazell (1982) argues that if risk is omitted from farm management models, 1) production response will be over-estimated, 2) optimal cropping patterns will be overly specialized and supply elasticities estimates will be biased. Yet, most policy recommendations are based on single-period, static models or assume risk neutrality. While there has long been considerable interest in the impact of risk on farm production and organization at the farm level, interest in the aggregate farm level has been comparatively recent. Just (1975) was perhaps one of the first to incorporate the effects of risk in assessing alternative agricultural policies. While the problem of measuring risk is a problem with both farm level and aggregate models, it has been a much greater problem at the aggregate level. Thus, a major concern in aggregate supply analysis lies in selecting an appropriate risk measure to be included in the analysis. Historically, aggregate models have included some type of variance measure of commodity prices or crop gross revenues as a proxy variable for risk.[3] But, these aggregate supply response models lack micro linkages in terms of individual risk attitudes: most farm level risk models are based on individual response to their own distributions of net farm income, given their unique

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[3] For example, two types of response models often used are the Nerlovian or the Ryan-Goodwin models which are subsequently modified to include a risk variable.

risk attitudes. Moreover, aggregate models have severe problems when extended to policy analysis in that even if the underlying prices are normally distributed, often the central policy focus is to alter the shape of the price distribution. Furthermore, even if both commodity prices and yields are normal, their product will not be normal. Also, as is well known, risk does not aggregate well do the "pooling" effect and thus, aggregate price and income variance are not satisfactory risk proxy variables. Finally, if producers are allowed to possess non-neutral risk attitudes, then aggregate measures of producer welfare are no longer valid; an individual's utility (welfare) is no longer a linear function of revenue.

Even though there are numerous methodological problems, supply response under risk is of considerable interest to policy makers because many fundamental Canadian farm programs are currently being examined for efficiency, distributional impacts and production neutrality. Programs such as stabilization and crop insurance, which are designed to modify the distribution of potential price, yield or income outcomes faced by the producer are coming under particular scrutiny. Key considerations in examining supply response under risk are that production decisions are made under ex-ante expectations and that many producers are risk averters over at least a portion of the range of possible incomes. While there are numerous studies on supply response under risk, there are few studies which examine supply response under both risky outcomes and risk aversion.

Objectives

The primary objective is to assess typical Saskatchewan producer supply response to price induced risk at the whole farm level, not at the enterprise

level. A secondary objective is to quantify the price and yield risk faced by typical wheat farmers on the brown soils of Saskatchewan.

Research Procedure and Methodology

This study is organized into three major sections. The first section of the study examines production and price risks faced by a typical Saskatchewan wheat farmer. Yield risk is based on simulated crop yields and historical weather patterns while price risk is based on historical price patterns adjusted for inflation and changing technologies. The next major section, section 2, identifies risk clusters of farms. The third section examines the supply response of individual risk clusters under risky prices and yields using representative farms.

In general, an acreage response function is of the form:

$$a = f(P) \tag{1.1}$$

where a = acreage, and
P = vector of commodity prices.

Acreage is a function of all commodity prices, including its own price, and the prices of its complements and substitutes. Note that equation 1.1 varies between the humid and semi-arid portions of North America. In the humid areas, land is continuously cropped and acreage response is the result of the substitution of one crop for another; thus, the acreage response function typically includes the prices of all crop substitutes. In the semi-arid regions, and in particular, the western Canadian prairies, substantial portions of farmland are summerfallowed. Wheat is the dominant crop and acreage response is derived primarily from a change in cropping intensity or the amount of summerfallow. While much research has been devoted to optimal crop rotations, recent research suggests that farmers should consider variable

cropping patterns or FLEXCROPPING, according to available spring soil moisture. Experience with the Top Management Workshop farmers, suggests that many farmers already informally incorporate spring soil moisture into their cropping decisions. FLEXCROPPING incorporates the concept of critical spring soil moisture thresholds--a farmer will crop land if its available soil moisture exceeds a predetermined critical soil level. While Weisensel (1988) examined optimal soil moisture thresholds using a dynamic programming framework, it did not examine the risk-profit tradeoff. In a later paper, Weisensel, Schoney and Van Kooten (1988) examine the risk efficiency of the FLEXCROP and alternative cropping strategies, including the traditional break-even decision rules and fixed cropping rotations. In addition to stochastic yields, they incorporate a soil moisture measurement error. In her dissertation, Chikwana examines the tradeoff between critical soil moisture thresholds and corresponding cropping intensities and income variability. Like Weisensel, she examines alternative cropping rules including the flexcropping but unlike Weisensel et al, she examines the production decision at the whole farm level and tests for stochastic efficiency using stochastic dominance with respect to a function. Her study features a bio-economic simulation model which incorporates a number of stochastic weather variables and error terms as well as timeliness penalties or yield reductions as a function of acres planted to generate cumulative density functions (cdf's) of future net worths. These cdf's form the basis of risk dominance comparisons.

While this study incorporates much of the work by Chikwana; Weisensel et al, and Schoney, it also adds price variability in addition to weather variability. In the following analysis, it is assumed that acreage response is determined by an individual producer's selection of risk-efficient cropping

strategies in reaction to expected price distributions, individual farm cost and financial structure and soil type. The basic model of supply response for an individual farmer becomes

$$A,q = f(P \mid r,S,C) \qquad (1.2)$$

where A = distribution of acreages,
q = distribution of quantities,
P = distribution of prices,
r = risk attitude,
S = soil zone and
C = farm business cost and financial structure.

Note that the traditional price, acreage and quantity or yield variables in equation 1.2 are no longer single-valued, but probability distributions of values. The various risk-efficient cropping strategies are based on FLEXCROP spring soil moisture thresholds and the corresponding cropping intensity. Thus, given price probability distributions, soil zone and risk preferences, acreage response can be generated by perturbing either expected prices or modifying the shape of the price probability distribution through the various government price stabilization/insurance programs.

The procedure used to find the schedule of A, q, P and r combinations is shown in figure 1. Given a distribution of commodity prices, a bio-economic simulator is used to estimate the cumulative density function of annualized returns for each critical soil moisture threshold (FLEXCROP decision rule), M_c. For a given price distribution, each M_c is examined for first degree stochastic efficiency (FSD). Where the efficient FSD set, M_c^*, consists of a single M_c, then this value is optimal over all risk attitudes(r). Since the decision rules are based on very small stepped values of a continuous variable, M_c, the M_c^* efficient set is likely to contain several efficient M_c and thus, additional information as to risk attitudes must be incorporated in

order to further discriminate among the various risk efficient decision rules. In this study, risk attitudes are measured by the Pratt-Arrow risk aversion coefficient. Because risk measurements are relatively imprecise, a risk interval with upper and lower bounds is defined. While little is known as to the exact distribution of r among Saskatchewan farmers, a recent study by Chikwana using the Top Management Workshop participants, provides potential distributions of r. Three risk clusters of farmers will be identified: risk neutral, risk loving and risk averse. Given the risk interval for a given risk grouping, stochastic dominance with respect to a function (SDRF) is used to further narrow the set of M_c^* choices. Associated with each M_c^*, is a corresponding distribution of A^* and q^*. Because yield and acreage response now vary according to at least two parameters, price and risk, the response surface also becomes at least three dimensional and the number of points required to map a surface explodes. Accordingly, the ratio of the standard deviation to the mean or the coefficient of variation is fixed so that as price varies so then does the variance. After M_c^* is found, the parameters of the price distribution are perturbed and the procedure repeated.

The procedure is also repeated for each price policy program. In addition to the benchmark of normally distributed prices, three potential government programs altering the distribution of commodity prices are defined: lower and upper price truncation; price insurance; and perfectly price stabilizing or fixed prices. In each program the mean price is preserved, so that supply response is a function of differing higher moments of the price distribution and risk attitudes.

Organization

The remainder of this study is organized in the following fashion: the various methods of supply response and supply response under risk are briefly reviewed in Chapter 2; the bio-economic simulation model is reviewed in Chapter 3; representative farm cost data and summary of risk preferences are presented in Chapter 4; the selection of price stabilization programs is presented in Chapter 5 ; and the results are presented in Chapter 6.

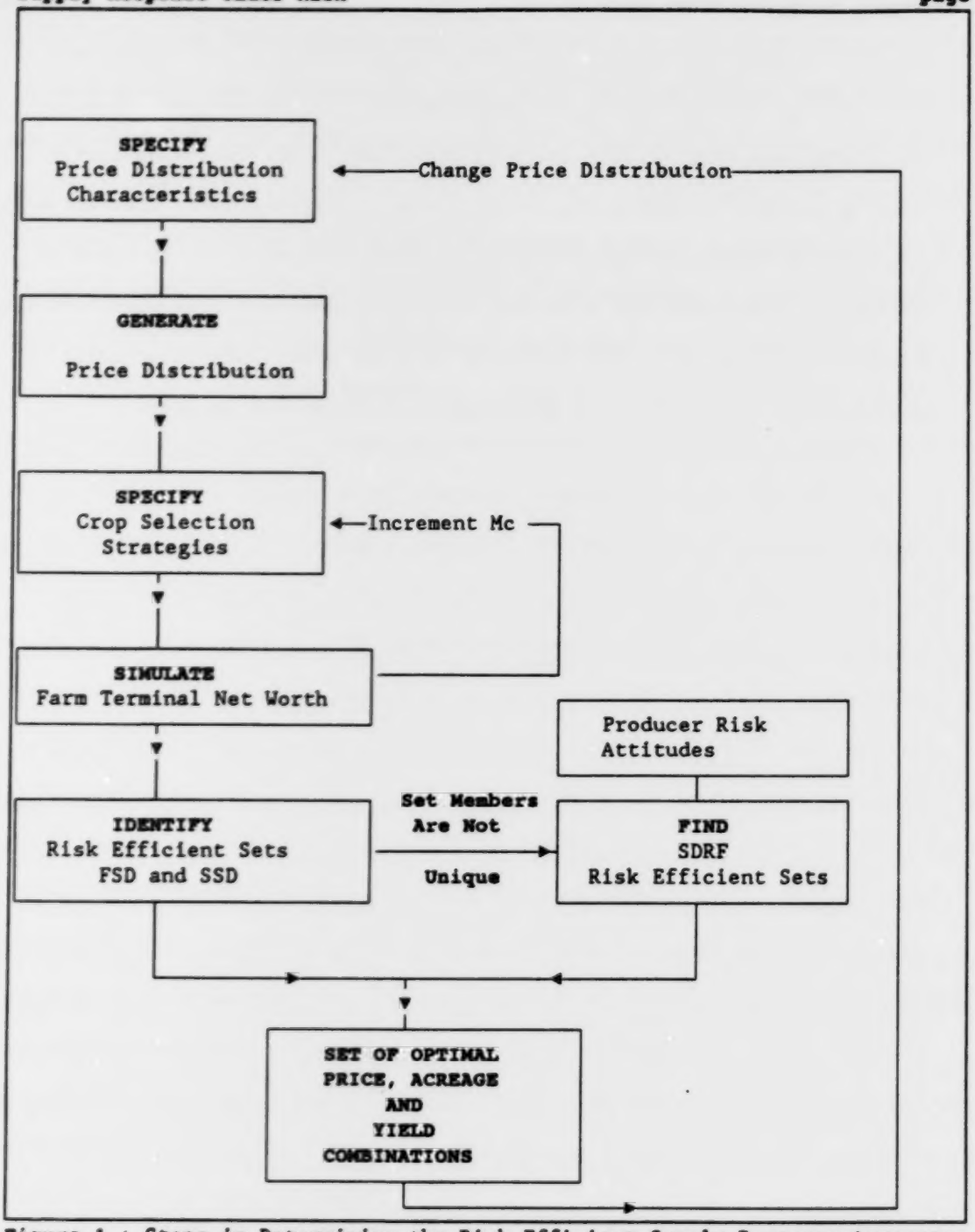

Figure 1 : Steps in Determining the Risk Efficient Supply Response Acreages

CHAPTER II: ALTERNATIVE MODELS OF CROPPING DECISIONS UNDER RISK

Introduction

Knight defines a risky situation as that situation where all possible outcomes and their joint probability density functions are known. Uncertainty is created when either or both conditions cannot be fulfilled: either all possible outcomes cannot be delineated and/or their probability density functions cannot be specified. In more recent times, most researchers tend to lump risk and uncertainty into one general category. In general, modern treatment of risk behavior is based on utility maximization (EUM) behavior.

Expected Utility Maximization

Risk aversion behavior can be derived from the maximization of expected utility hypothesis (EUM). Economists find the EUM hypothesis attractive not only for its mathematical simplicity but also because it integrates well into existing economic theory, particularly consumer theory. As in consumer theory, the decision maker is assumed to maximize except utility--except the choices are risky. In order for a utility function to exist, certain restrictions as to rationality and consistency in choices among several risky alternatives must be placed on human behavior. These properties can be stated as the axioms of ordering, transitivity, substitution among choices and certainty equivalent among choices (Barry, 1984). If these axioms hold, it follows that an optimal risky choice can be based on the maximization of expected utility and that an individual will always choose the prospect which yields the highest expected value of utility, usually expressed as a function of income or wealth.

Note that risk behavior is a result, not an explicit parameter: a decision maker's attitude towards risk is inferred from the shape of his

utility function. A concave function implies risk aversion, a convex function implies risk preferring and a linear function implies risk neutrality. A decision maker may also have a utility function with both convex and concave segments indicating changes in attitudes for monetary outcomes. In the following sections, two basic approaches to micro supply response under risk are examined--crop portfolio analysis and stochastic efficiency criteria.

Crop Portfolio Analysis

Farm cropping decisions can also be considered in a fashion similar to a stock portfolio: the proportion of land devoted to any particular crop is similar to a decision to buy a particular stock. The net returns from an acre of crop is gross return less variable costs. Key to this analysis is the correlations between the various net returns. There are two basic models of crop portfolios based on the expected income / variance of income (E-V) stock investment model used by Markowitz and Hazell's MOTAD.

E-V Portfolio Analysis

In the E-V crop portfolio model, the expected utility of the investor is a function of expected income and variance of income:

$$\begin{aligned} &\text{Max } U = RX + \lambda X^t \sigma X \\ &\text{st} \quad AX \leq b \\ &\qquad X \geq 0 \end{aligned}$$

where: R = Expected Return,
λ = Scaler and
σ = variance-covariance matrix of returns

The assumptions of the E-V model can be briefly stated as the following:

1. There is functional linear trade off between income and variance.

a. The utility function can adequately be described by the first and second moments which implies an underlying normal distribution,

or

b. The utility function is quadratic.

2. The decision maker is a price taker.

The first assumption is perhaps the most controversial in its implications. The existence of a linear trade off between income and variance involves a number of subtle but important assumptions. Variance as a measure of risk implies that the decision maker's utility function is quadratic or the income distribution is normally distributed. Thus, either the decision maker must be indifferent to higher moments such as the third or fourth or the distribution must be normal; in which case the higher moments are identical. The quadratic utility assumption is largely unacceptable because decision makers are unlikely to be indifferent to skewness or peakedness and so the burden is placed on the normality assumption.[4]

The last assumption guarantees that returns are independent of the level of output; R is fixed per unit. This may be a problem in a crop portfolio if either yield timeliness penalties or economies of size exist.

In crop portfolio analysis, decision makers are generally assumed to be risk averters, or $\lambda < 0$. Because λ is generally not precisely known, λ is parametrically varied until the EV curve turns down, mapping an efficient frontier. Thus, the efficient frontier is defined as the locus of points where for any given income, the variance is at a minimum and conversely, for

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[4] Some researchers also question the notion that positive deviations be weighted the same as negative deviations and suggest that risk could be defined in other ways such as semi-variance (MOTAD) or that risk be measured as a deviation from a "target" income (Target MOTAD).

any given variance, the expected income is at a maximum. Graphically, an E-V efficient frontier is shown in figure 3. The indifference curve, I, is shown as a linear line and the optimal point is the point of tangency between the I and the E-V frontier.

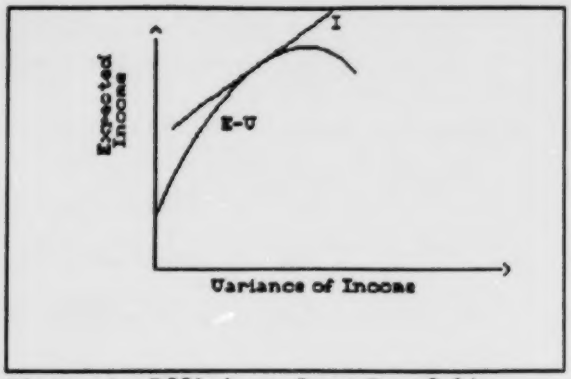

Figure 2: Efficient Crop Portfolio

The quadratic utility function is an unrealistic assumption so that if the distributions are non-normal, then the resulting choices or portfolios may be unrealistic. In addition, a quadratic objective function means that it can be difficult to solve computationally unless the problem size is restricted. Nevertheless, the E-V method of analysis is a very appealing tool both theoretically and operationally.

The MOTAD/MAD Model

In recent years, Hazell and others have proposed another model, the MOTAD (minimization of total absolute derivations) or E-A (expected value - absolute value) model to circumvent the computational difficulties and size limitations imposed by most L.P. solution algorithms. In the MOTAD model, risk is measured in a different manner. In the E-V model, risk is measured by variance but in the MOTAD model the risk (A) is measured as the sum of

deviations from the mean

$$A = \frac{1}{S} \sum_{h=1}^{n} \sum_{j=1}^{n} (R_{hj} - \bar{R}_j) X_j \qquad (2.8)$$

where: R_j - mean net margin of returns,
R_{hj} - annual net margin in period j and
S - number of sample observations (years).

The MOTAD model incorporates similar assumptions to the E-V model but the MOTAD criterion loses some precision in that semivariance[5] only approximates variance.[6] Hazell (pp. 60-61) tests his model through a Monte Carlo simulation and concludes that the E-A sample mean absolute deviation is 88 percent efficient in terms of estimating variance when the population is normally distributed. Furthermore, given the assumptions of normality, nonstochastic and fixed R_j's, probabilistic statements can be made about the likelihood of various income levels through the use of Herry's H statistic (1971, p 6).

The MOTAD method does not explicitly consider the activity risk interrelationships in the same fashion as the covariances of the E-V model. In the process of minimizing the sum of mean absolute deviations, the interrelationships are implicitly considered through the linear income constraints. Thus, the enterprise interrelationships are not as open to examination and interpretation as the variance-covariance matrix. In summary, the MAD model trades precision and explicitness for computational and operational simplicity and low cost solution techniques.[7] Since the model is

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[5] The sum of absolute deviations is labelled by semi-variance.

[6] Semivariance is the sum of absolute deviations from the mean.

[7] For further criticisms of the MOTAD model refer to Chen.

linear in both criterion and constraints, it can be solved by existing L.P. codes. Moreover, it is not extremely expensive in terms of matrix size. The MOTAD/E-A model can be easily set up to incorporate the semi-variance criteria of Markowitz. In this popular formulation, risk is measured by S, the sum of the negative deviations from the mean. Another variation measures risk as negative deviations from a "target" return which is higher than the mean return.

Stochastically Efficient Criteria

An alterative approach to the crop portfolio analysis which relies on more general assumptions as to the nature of the decision maker's utility surface is the stochastically efficient approach. Given specified restrictions on the decision maker's preferences and in some cases, on the probability distributions of feasible alternatives, an efficiency criterion provides a partial ordering of choices. As Levy and Sarnat (1972) note, an efficiency criterion divides the decision alternatives into two mutually exclusive sets consisting of an efficient set and an inefficient set. The efficient set contains the preferred choices of every individual whose preferences conform to the restrictions associated with the criterion.

Stochastic dominance criteria divide risky choices into efficient and inefficient sets based on independent pair-wise comparisons of all alternative choices. In identifying the stochastically efficient set, each pair of risky outcomes is compared for dominance based on their corresponding cumulative density functions (CDF). Five stochastic dominance selection criteria are First Degree Stochastic Dominance (FSD), Second Degree Stochastic Dominance (SSD), Third Degree Stochastic Dominance (TSD), Stochastic Dominance with

Respect to a Function (SDRF) and Convex Set Stochastic Dominance (CSSD). The following sections review the most popular criteria First Degree and Second Degree Stochastic Dominance and Stochastic Dominance with Respect to a Function.

First and Second Degree Stochastic Dominance

First Degree Stochastic Dominance (FSD) incorporates the least restrictive set of underlying assumptions of any of the stochastic choice criteria: the FSD criterion requires only that decision makers prefer more to less. Under FSD, an alternative with an outcome distribution defined by cumulative distribution F(Y) is preferred to a second alternative with cumulative distribution G(y) if

$$F(y) <= G(y) \qquad (2.0)$$

for all possible values of y and the inequality is strict for some values of y. While FSD rules are based on the weakest possible assumptions that can be made about the underlying utility functions, they can not discriminate between risky prospects whose cumulative density functions intersect. While FSD is extremely robust, it generally is not a very discriminating criterion, and the resulting stochastically efficient sets can be quite large.

Unlike FSD, SSD allows discrimination between risky prospects whose cumulative density functions intersect. The SSD criterion compares the intersecting areas under the cdf's. A distribution function F1 dominates another G1 if it lies more to the right in terms of differences in area between the CDF curves cumulated from the lower values of uncertain quantity (Anderson et al, 1977). This is depicted in figure 2 where the area marked A exceeds the area marked B. SSD also holds for all decision makers whose

utility functions have positive but decreasing marginal utility.

Even though the concept of stochastic dominance is attractive because of the relatively unrestrictive nature of the underlying assumptions as to the nature and the shape of the utility function, FSD and SSD have not been very successful in eliminating alternatives from the efficient sets. Accordingly, additional information as to risk attitudes usually must be incorporated. The following section briefly outlines the risk interval approach of eliciting general attributes of a producer's utility function and then proceeds to establish the use of that information to discriminate between risky alternatives in stochastic dominance with respect to a function.

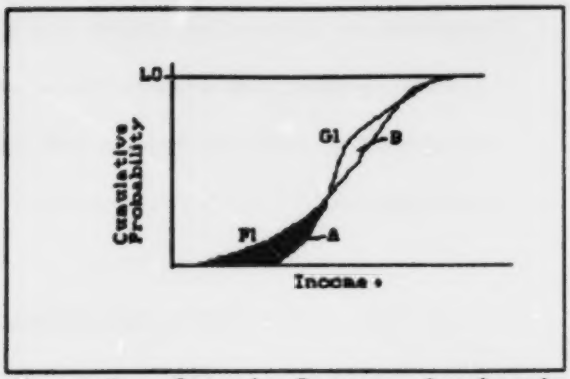

Figure 3: Second Degree Stochastic Dominance

Risk Interval Approach

The problems associated with eliciting an uniquely defined utility function led to the Risk Interval Approach formulated by Meyer (1977b) and later propounded by King and Robison (1981a, 1981b), which explicitly accounts for possible errors in the utility measurement. King and Robison (1982) have shown that individuals can be grouped according to specific intervals of the Arrow-Pratt measure of absolute risk aversion. The Arrow-Pratt absolute risk aversion coefficient is

$$r = -(U''(y)/U'(y)) \qquad (2.1)$$

where $U''(y)$ = second derivative of utility of income, and

$U'(y)$ - first derivative of utility of income.

A related measure of risk preferences, the coefficient of relative risk aversion, is defined as

$$R(y) = -YU''(y)/U'(y) \tag{2.2}$$

where $R(y)$ - Relative risk aversion,
Y - Average net income,
$U''(y)$ - Second derivative of utility of income and
$U'(y)$ - First derivative of utility of income.

The relative risk aversion coefficient is also referred to as the elasticity of marginal utility. As an elasticity, it is dimensionless and related to absolute risk aversion by

$$R(y) = YA(Y). \tag{2.3}$$

The r interval is estimated by asking decision makers to choose between carefully chosen pairs of discrete probability density functions. Each pair of distributions is defined over a relatively narrow range, so that the absolute risk aversion space is divided into two regions: one distribution consistent with the predetermined risk interval and the other inconsistent with it. By confronting the decision maker with a series of choices between carefully selected pairs of distributions, the risk aversion interval for the decision makers' preferences can be established.

Stochastic Dominance with Respect to a Function

While the knowledge of r or the range of r can be used to estimate risk premiums under certain conditions, it is more useful when it is combined with stochastic dominance with respect to a function (SDRF). SDRF was introduced by Meyer (1977) as a more discriminating function than the SSD efficiency criterion. SDRF is a more discriminating efficiency criterion because it

incorporates more information as to individual preferences. By incorporating additional information over a limited range of the utility function, the SDRF can order choices for decision makers whose absolute risk aversion function lies within specified lower and upper bounds, or a risk interval, A. Given the values of "r" at the lower bound (A_1) and the upper bound (A_2), it can be determined whether an individual would prefer one cumulative distribution of net income, F(y), to another G(y) or if he/she is indifferent. The solution procedure finds the utility function U(y) which minimizes

$$[G(y) - F(y)] U'(y)\, dy \tag{2.5}$$

subject to

$$A_1(y) <= r <= A_2(y) \tag{2.6}$$

where $A_1(y)$ = the lower bound of the risk aversion interval,
$A_2(y)$ = the upper bound of the risk aversion interval and
y = income level.

The expression in equation 2.5 is the difference between the expected utilities of outcome distributions F(y) and G(y). If for a given class of decision makers, the minimum of this difference is positive, F(y) is unanimously preferred to G(y). If the minimum is zero, it is possible for an agent in the relevant class of decision makers to be indifferent between the two alternatives and thus they cannot be ordered. If the minimum is negative, then the particular set of decision makers does not unanimously prefer G(y) to F(y). In this case, the expression

$$[F(y) - G(y)] U'(y)dy \tag{2.7}$$

must be minimized subject to equation 2.6. Note that this procedure does not ensure complete ordering, as it is possible for both equations 2.5 and 2.7 to be negative. Meyer (1977) uses optimal control techniques to derive the solution to this problem. The exponential utility function consistent with

this problems is

$$u(y) = -e^{-Ai(y)y} \quad i = 1,2 \tag{2.8}$$

where Ai(y) is the lower or upper bound of the absolute risk aversion level.

Limitations of Risk Interval Approach/ SDRF

SDRF may allow ranking of farm plans that can not be ranked by either first or second degree stochastic rules but the efficient set may still consist of multiple alternatives. SDRF also requires specific information as to the lower and upper bounds of the decision maker's absolute aversion function. This information is generally not available nor can it necessarily be estimated for broad groups of individuals. In general, r must be elicited for each individual and there is a relatively high cost of eliciting individual preferences. This is particularly true as the risk aversion interval narrows, and the number of pairwise choices increase by 2^N where N is the number of intervals. In addition, the value of r may change over time. However, Love and Robison (1984) conclude that risk preferences are rather stable over the income ranges that are typically experienced by farmers. Nevertheless, risk preferences may be intertemporally unstable over wide ranges of income or longer time periods.

Summary

While the crop portfolio models have much appeal in farm level decision models, they present particular difficulty in that the income distributions will be altered by the various price insurance and stabilization programs and that income is dynamic. In addition, they require unrealistic assumptions as to the nature of the underlying risk attitudes. Thus, neither E-V nor MOTAD

analysis is appropriate. Stochastic efficiency analysis is also attractive and commonly used in firm level models. While FSD and SSD can provide very robust conclusions, they are unlikely to result in efficient sets consisting of a single strategy. Accordingly, stochastic dominance with respect to a function (SDRF) was chosen to identify the risk efficient strategies in that it can incorporate additional information as to risk attitudes to further discriminate among risk efficient alternatives. Nevertheless, the resulting set of efficient alternatives need not be singular. The Risk Interval Approach is used to assess farmers' risk attitudes.

CHAPTER III: THE BIO-ECONOMIC SIMULATOR

Introduction

The primary purpose of the bio-economic simulator is to generate the cumulative density functions of annualized ending net worth for each combination of crop selection strategy (M_c), price policy distribution and representative farm. The bio-economic simulator incorporates three major modules: a soil, an agronomic and a management module. The soil module models the climate-soil moisture interaction to simulate spring soil moisture, M_t. M_t is a function of real-time weather variables and a stochastic error term. The agronomic module simulates crop yield based on M_t, real-time summer precipitation and a stochastic error term. The management module incorporates the FLEXCROP decision making criterion and the various return, cost and financial relationships. The following section reviews each of the modules and their corresponding data requirements.

The Management Module

It is assumed that the farmer's objective is to maximize ending net worth subject to fixed family living removals. In the following equation, all variables are in the current year (t=1) except where indicated and all prices, costs, family living expenses, value of equipment, machinery and buildings and land are expressed in nominal values.

$$INT_t = Rate * BAL_{t-1} \tag{3.0}$$

$$MARGIN_t = \sum_{c=1}^{3}((P_t - C^k_t) * Y_{ct} - C^h t - CRC^d_{ct}) * H_{ct} \tag{3.1}$$

$$CF_t = MARGIN_t - P_t - INT_t - OH_t - FL - CRC^i_t - TX_t \tag{3.2}$$

$$BAL_t = BAL_{t-1} + CF_t \tag{3.3}$$

$$NW_t = Assets_t - BAL_t \tag{3.4}$$

where t = time period, 1..15,
f = fallow,
s = stubble,
CF = Cash Flow,
FL = Family Living Expenses,
$MARGIN_t$ = Total farm operating margin
PT = Property Taxes,
INT = Interest Paid (or received),
OH = Overhead Expenses,
Rate = Interest Rate,
P = Price,
Y = Yield per Hectare (kg/ha),
C_k = Variable/Fixed Cost per Kilogram ($/kg),
C_h = Variable/Fixed Cost per Hectare ($/ha),
H = Hectares 1-fallow, 2-crop on fallow and 3-crop on stubble,
NW_t = ending net worth in time period t,
$Assets_t$ = intermediate and long run assets and,
BAL_t = beginning balance,

Additional key assumptions are:
1. the farmer's objective is to maximize terminal net worth,
2. fixed machine ownership costs vary according to cropped acreage
3. cash flow constraints are not binding - capital is perfectly available,
4. yield quotas are not binding,
5. there are no government payments, and
6. income tax rates are constant.

The farm is assumed to consist of four fields, each a separate decision-making unit with its own crop/fallow choice. Summer and winter precipitation are based on the random selection of one of the 44 years of the Kindersley actual weather years. Each weather year is assumed to be independent of all other weather years. Actual spring soil moisture is calculated based on the previous fallow/crop state, a random weather year and an error term. The actual spring soil moisture provides the basis for the crop/fallow decision. Each spring the simulated spring soil moisture, Mt, is compared to a prespecified critical threshold soil moisture (FLEXCROP decision rule), M_c, on a field by field basis. If $M_t \geq M_c$, then the field is seeded. If the field has been previously cropped, then costs are based on stubble cropping,

otherwise cropping costs are based on fallow cropping. If $M_t < M_c$, then the field is fallowed. Another summer weather year is drawn and yields are determined. Farm returns and expenses are calculated according to equations (3.0) to (3.4) and the net balances forward are calculated. The next year starts with the redrawing of another winter weather year and the determination of the new spring soil moisture. The entire set of income distributions for M_c is found by parametrically ranging M_c and repeating the simulation.

Both commodity prices and yields are stochastic and are assumed to be independent of each other. Accordingly, gross revenues are also stochastic. In addition, annual costs are indirectly stochastic insomuch as seeded acres on fallow or stubble are a function of the product of M_t, a stochastic variable. CDF's for the stochastic dominance analysis based on each strategy are simulated 1000 times.

The major biological components in the bio-economic simulation model are May soil moisture and the wheat yield.

The Soil Module: May Soil Moisture

The May soil moisture level is a key relationship in that it provides the threshold values used to make the crop/fallow decision. May soil moisture is assumed to be a function of the previous May soil moisture, summer and winter precipitation and an error term.

$$M_{jt} = f(M_{t-1}, S_{t-1}, W_{t-1}) + e_{jt} \qquad (3.5)$$

where j - previously fallowed or cropped,
M_{jt} - May moisture at period t,
S_t - summer (growing season) precipitation in period t,
W_t - winter precipitation for period t and

e_{jt} = May moisture error in period t.

A second order polynomial functional form is used to estimate the relationship between May soil moisture, lagged May soil moisture, summer precipitation and winter precipitation. Spring soil moisture is estimated for both fallow years and stubble years because of the impact of differing summer ET rates and differing abilities to trap and absorb winter precipitation. The data include 161 observations from the Innovative Acres Project conducted by the Soils Department at the University of Saskatchewan over the years of 1983-1986. The data are both cross sectional and time series. The four years of data are reduced to 3 years because of the lagged soil moisture and summer precipitation variables. Thus, only three weather years can be actually used. In addition, winter precipitation data were not collected and thus winter precipitation is estimated based on the nearest weather observation point. The estimated equations are:

Fallow Year:

$$\underset{}{M_t} = \underset{(0.01)}{0.001} + \underset{(0.049)^{**}}{0.463\ M_{t-1}} + \underset{(0.609)}{0.082\ S_{t-1}} + \underset{(0.237)}{0.261\ W_{t-1}} + \underset{(0.035)^{**}}{0.126\ (S_{t-1})^2}$$

$$+ \underset{(0.009)^{**}}{0.052\ (W_{t-1})^2} - \underset{(0.027)^{**}}{0.160\ (S_{t-1})(W_{t-1})} \qquad (3.6)$$

n = 152
R^2 = 0.58
SEE = 2.54
standard error values in parentheses, and
** indicates t test significance from zero at a probability of 95%.

Crop Year:

$$M_t = \underset{(1.83)^{**}}{-5.316} + \underset{(0.043)^{**}}{0.465}\, M_{t-1} + \underset{(0.379)^{**}}{1.317}\, S_{t-1} + \underset{(0.200)}{0.048}\, W_{t-1} + \underset{(0.013)}{-0.015}\, (S_{t-1})^2 \qquad (3.7)$$

$$+ \underset{(0.005)^{**}}{0.023}(W_{t-1})^2 - \underset{(0.011)^{**}}{0.054}\,(S_{t-1})(W_{t-1})$$

$n = 152$
$R^2 = 0.24$
SEE = 4.00
standard error values in parentheses, and
** indicates t test significance from zero at a probability of 95%.

The R^2 values are 0.58 and 0.24, respectively for the fallow and the crop equations, respectively, indicating a much higher degree of predictability of soil moisture following fallow than crop. The associated standard error of the estimate (SEE) is important in that it specifies the relative riskiness associated with fallow/crop. The higher SEE associated with the crop equation will translate into more variable May soil moistures.

Not all of the estimated S_{t-1} and W_{t-1} coefficients are significantly different from zero at the 90 or 95% level as indicated by the t test. However, these coefficients have been retained because upon further investigation, equations based on reduced parameter sets tended to be unstable when applied to 44 years of actual weather data.[8] The spring soil moisture coefficient, M_{t-1}, is nearly identical between the two equations, at approximately 0.463 to 0.465. This indicates that approximately 46% of the spring soil moisture is conserved for use in the following year. However, note that the remaining estimated parameters differ considerably between fallow and stubble years. The intercept of the fallow equation is extremely close to zero while the intercept of the crop year is negative and significantly different from zero. Likewise, the parameters associated with

[8] This set of data is independent of the original weather information.

summer (S_{t-1}) and winter (W_{t-1}) precipitation are also considerably different between the two equations. The fallow equation tends to be convex with respect to summer and winter precipitation in some portions of the function, indicating that carryover increases at an increasing rate as seasonal precipitation increases. This is due to the positive $(S_{t-1})^2$ and $(W_{t-1})^2$ terms Nonetheless, the negative (S_{t-1} x W_{t-1}) interaction term induces concavity when precipitation from both seasons and in particular, winter, is high.

In sharp contrast to the fallow equation, the net impact of summer precipitation on stubble soil moisture is relatively small. The estimated coefficients of S_{t-1} associated with the stubble equation are strongly concave--as would be expected from the evapo-transpiration (ET) rates associated with a growing wheat crop. In addition, strong concavity could also be induced by precipitation runoff losses. Winter precipitation, W_{t-1}, is far less concave but contributes far more to spring soil moisture in the stubble equation than it does in the fallow equation. This possibly indicates that stubble land is better able to trap and absorb snow than fallow land.

In order to better explore the contributions of M_{t-1}, S_{t-1} and W_{t-1} on the following spring moisture, M_t, a simple sensitivity analysis is conducted using average coefficient values for both fallowed and stubble equations.[9] The differences become quite apparent. On fallowed land, spring moisture (M_{t-1}), and summer precipitation (S_{t-1}) contribute approximately 27.4% and 72.6%, respectively, of the following spring soil moisture; but winter precipitation (W_{t-1}) contributes little towards spring soil moisture. On stubble land the major contributing variables are spring moisture (M_{t-1}) and

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[9] Each variable was increased by 1 mm, holding the remaining variables constant.

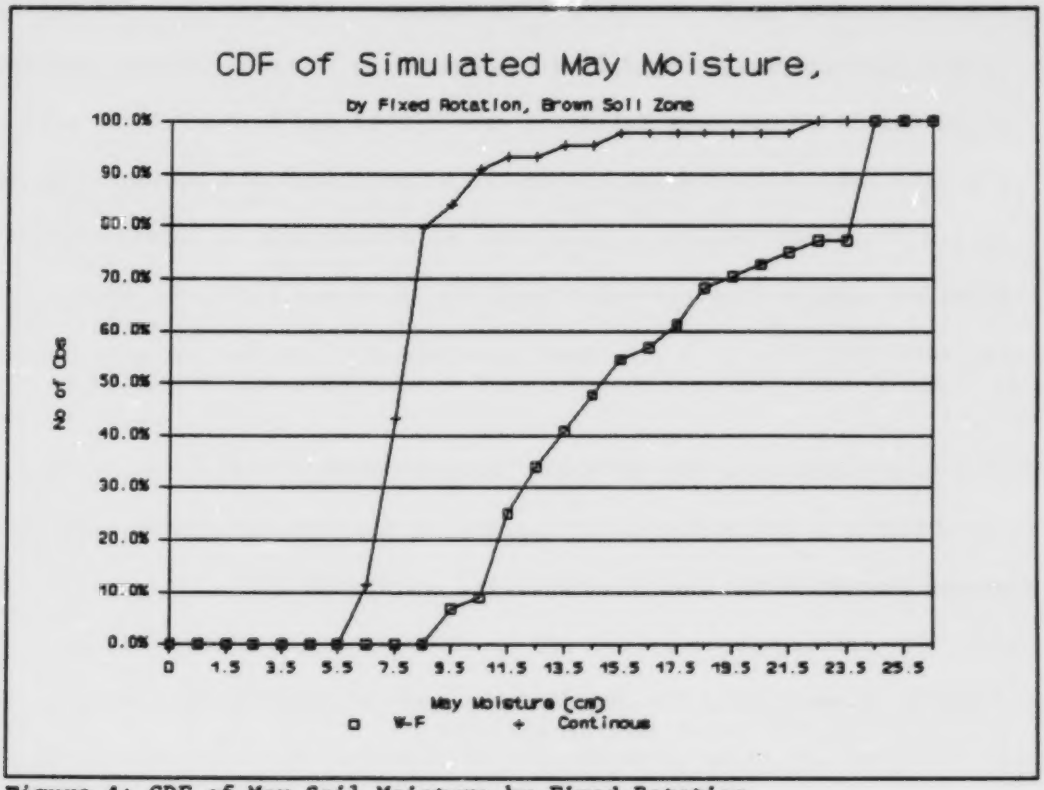

Figure 4: CDF of May Soil Moisture by Fixed Rotation

winter precipitation (Wt-1), which contribute approximately 30.2% and 69.8%, respectively, to the following spring soil moisture; summer precipitation (St-1) contributes little towards spring soil moisture.

In order to further demonstrate the potential differences associated with the fallow/cropping decisions, a simple spreadsheet was constructed assuming a 2 year wheat/fallow rotation and a continuous rotation. Note that the 2 year rotation is based on two fields so that the lumpiness is averaged out. The estimated equations are applied to 44 years of actual weather data for Kindersley, Saskatchewan which is located in the brown soil zone, over the years of 1942-1986. The results are shown in Appendix Table A-1. The resulting spring soil moisture levels are used to construct probability

cumulative density functions (CDF's) displayed in figure 4. Surprisingly, spring moisture following fallow is somewhat more variable and less regular in shape than soil moisture following crop. This may be due to the skewness in the data and the truncation associated with minimum and maximum soil moisture levels.[10] These results will be used as a benchmark in later comparisons in order to compare direct weather variability versus simulated total variability.

The Agronomic Module: Wheat Yields

Yield is assumed to be a function of May soil moisture, (equation 3.8), summer precipitation and an error term.

$$Y_t = f(M_{jt}, S_t) + e_{yt} \qquad (3.8)$$

where Y_t = wheat yield in time period t and
e_{yt} = yield error term in period t.

Yield estimates are also based on the Innovative Acres Project Data which includes both time series and cross sectional observations of May soil moisture, growing season (summer) precipitation and yield; a total of 556 observations are included over the period of 1983 to 1986.[11] While only a quadratic form is presented, several functional forms, including the translog, were used to estimate the relationship between yield and moisture. The quadratic form is chosen because the negative intercept is appealing in that it requires moisture levels exceed a critical level before any crop can

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[10] It is assumed that soil moisture could not fall below 0 nor exceed 25 cm of moisture.

[11] These data were obtained from the Soil Science Department at the University of Saskatchewan.

be produced. All of the estimated coefficients are significantly different from zero at the 95% level as indicated by their t-statistics.

$$Y_t = \underset{(302)^{**}}{-2374} + \underset{(33.2)^{**}}{319.2\, M_t} + \underset{(33.5)^{**}}{201.6 S_t} - \underset{(1.13)^{**}}{5.65\, M_t^2} - \underset{(0.74)^{**}}{2.35\, S_t^2} - \underset{(1.17)^{**}}{6.01\, M_t S_t} \qquad (3.9)$$

$n = 550$
$R^2 = 0.44$
SEE = 702
standard error values in parentheses, and
** indicates t test significance from zero at a probability of 95%.

Using equation (3.9), approximately 6-7 cm of spring soil moisture and another 6-7 cm of summer precipitation are required to produce a crop sufficiently large enough to justify harvesting. Equation (3.9) is sufficiently concave to have a stage 3; however, stage three of production requires either a fully recharged soil moisture at seeding time (25 cm) and a near normal summer precipitation of 15 cm or a normal seeding moisture of 12 cm and almost double the average summer precipitation (28 cm).

Using spring soil moisture estimates in Appendix Table A-1 and equation (3.9), yields are also estimated and the corresponding yield CDF constructed, and are presented in figure 5. Note that while the spring soil moisture associated with fallow is more highly variable than that associated with cropping, the subsequent wheat yields follow different patterns due to the concavity of the yield function. Estimated yields are 2060 and 1606 kg/h respectively for the 2 year wheat-fallow and continuous rotations respectively. The corresponding standard deviations are 386 kg/h (2 yr) and 474 kg/h (continuous) and coefficients of variation are 18.7% and 29.5%. Thus, the continuous rotation generates about twice as much relative risk as the 2 year fallow rotation. However, the C.V. is a poor measure of relative

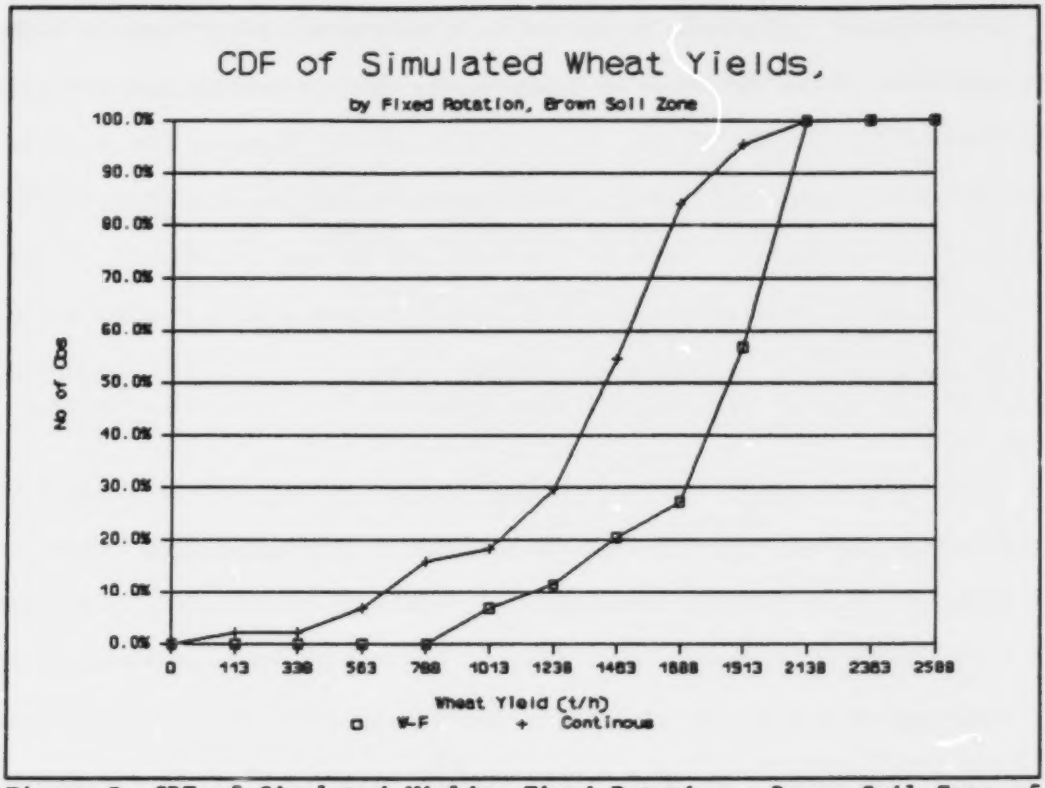

Figure 5: CDF of Simulated Yields, Fixed Rotations, Brown Soil Zone of Saskatchewan

risk; risk is perhaps best evaluated through the yield CDF. For much of the distribution, the 2-year fallow wheat rotation is a constant 400 to 500 kg/h greater than the continuous rotation. In addition, a crop failure is very unlikely with a 2-year fallow wheat rotation, but it is approximately a 1 in 10 year event with a continuous rotation. However, these comparisons should be used with extreme caution in that they are not true simulations in that they omit the error terms associated with both equations (3.6) and (3.9) and they are not based on the FLEXCROP model.

Error Term

An important component in eq. 3.6, 3.7 and 3.9 is the error term because it influences the relative riskiness of fallow and stubble cropping. The OLS procedures assume that error terms are normally distributed and this same assumption is continued in the simulation of soil moisture and yields. The following procedure is used to estimate the error term:

$$e = \text{Sqrt}(-2\ \ln(u_1))\cos(2\pi(u_2))\sigma + \mu \qquad (3.10)$$

where e - error term,
sqrt - square root,
ln - natural log,
u_1, u_2 - random numbers between 0 and 1,
Cos - cosine,
σ - standard deviation of the error terms, and,
μ - mean of the error terms,

The mean error is assumed to be 0, from the OLS procedure and the corresponding and standard deviation is the SEE of the corresponding equation.

Income CDF's

The ending net worth is simulated over a 15 year period for each M_c strategy. Because the cdf of ending net worth is inconsistent with the income intervals used in the elicitation of risk attitudes, these distributions must be annualized using the following formula:

$$A = [W_n/(1+i)^n - W_o] * i/(1-(1+i)^{-n}) \qquad (3.11)$$

where A - annualized income,
W_n - terminal net worth,
i - discount rate,
n - years and
W_o - initial net worth

Stochastically Efficient Sets

The various M_c strategies form the basic choice set for given risk

clusters, price levels and price stabilization policies. Because producers may differ in their preferences for differing price stabilization policies, an expanded choices set includes a combination of M_c strategies and the various price stabilization policies. Each choice set is evaluated for stochastic dominance and stochastic dominance with respect to a function (SDRF) in order to identify the set of risk efficient M_c^*, given risk attitudes. In brief review, SDRF is required when first and second degree stochastic dominance fails to identify a single risk efficient alternative. SDRF incorporates further information as to risk attitudes by allowing the absolute risk coefficient, r to vary between r_l and r_u or a risk interval. The risk interval may vary by income level. Given, a set of risk intervals, SDRF compares each pair of distributions over various income levels and identifies dominant and dominated alternatives.[12] The dominant distributions are the set of risk efficient strategies, M_c^*.

Summary

A bio-economic stochastic simulator is constructed to generate cumulative density functions for alternative crop selection strategies, M_c. The simulation model has three major modules: a soil, an agronomic and a management module. There are four primary stochastic elements, weather, a spring soil moisture error term, a yield error term and commodity prices. Both the soil and agronomic modules are critical components. The spring soil moisture, M_t, is a particularly critical component because it forms the basis for comparison with M_c; if $M_t \geq M_c$, then the field is seeded and if $M_t < M_c$,

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[12] SDRF is further explained in Chapter II.

then the field is fallowed. Both fallow and stubble spring moisture relationships are based on Innovative Acres data for the years of 1983 to 1986. The R^2 values are 0.58 and 0.24 respectively for the fallow and stubble M_t. There are several important points to note about the fallow and stubble M_t. First, the spring moisture relationships differ; summer precipitation is more important in determining fallow M_t and winter precipitation is more important in determining stubble M_t. Secondly, the stubble M_t, is more variable and has a much higher error term. This means that it will be intrinsically riskier. In addition, M_t is a major variable in determining yields. The yield module is also critical in that not only must the relationship between fallow and stubble yields be accurately estimated but their relative variability must also be properly captured. The yield equation is based on a second order polynomial with an estimated R^2 of 0.44. When fallow and continuous cropping yields are compared, the fallow yield tends to exceed the continuous yield by a constant 400 to 500 kg/h over much of the yield cdf. However, it remains to be seen how this yield dominance will translate into income dominance under the FLEXCROP decision rule.

In order to reduce annual income fluctuations associated with the lumpiness of the seed/fallow decision, soil moisture and yields, the bio-simulator incorporates four fields, each separate decision making entities and differing in initial soil moisture. The management module incorporates traditional cash flow and net worth accounting equations which form the linkages between annual income and growth in net worth. The ending net worth is annualized and the resulting cdf of annualized income is the basis of comparison of alternative M_c. Stochastic dominance with respect to a function is used to select the risk efficient farm plans for specific risk aversion

intervals. The following chapters define the three farms representing alternative risk attitudes and the various price scenarios and price stabilization policies.

CHAPTER IV: REPRESENTATIVE FARMS AND RISK PREFERENCES

Introduction

This study is limited to the farmers on the brown soils of Saskatchewan. The brown soil zone covers 8.5 million hectares and lies in Southwestern Saskatchewan. Lack of moisture in this soil zone limits crops to small grains and pasture. The dark-brown soil zone has somewhat cooler temperatures and more moisture than the brown soil zone which covers 7.4 million hectares and lies to the north and east of the brown soil zone. The black soil zone covers 10.7 million hectares and lies to the north and east of the dark-brown soil zone. It has more moisture but cooler temperatures than either the brown or dark brown soil zone (Saskatchewan Agriculture, 1986).

Representative farms are delineated based on the cluster analysis of 1987 Top Management producers. Three clusters are identified: relatively risk loving; relatively risk neutral and relatively risk averse. From these three clusters, three corresponding representative farms are defined. The following sections report the original survey, the clusters and the corresponding representative farms used to simulate producer supply response to alternative price stabilization programs.

Risk Attitudes of Saskatchewan Farmers

Top Management Workshops participants were surveyed in 1987 as to their risk attitudes using techniques developed by King and Robison (1981a, b). In the following analysis, net income is defined as income available for family living and machine and building purchases. Each farmer participant was asked to order 12 pair-wise distributions of net farm income for three different income intervals. Key to the development of the questionnaire is the income

distribution parameters, presented in Table 4.0. The income distributions underlying the pairwise comparisons must contain sufficient dispersion to represent real-world relevance to the respondents but not so broadly defined to encompass too vast an income interval.[13] Note that mean income level I (low net income levels) is set at a relatively low level of $10,000, while II, (middle net income level) is set at $20,000, also a relatively low income level but III (high income level) is set at $40,000 is still a relatively modest income; this is because our interest lies primarily in the low end of the income distribution.

Table 4.0: Income Distribution Parameters, Risk Attitude Questionnaire, 1987

Statistic	Net-Income Level		
	I	II	III
	----- $ -----		
Mean Net Income	10,000	20,000	40,000
Std Deviation	1,500	3,000	5,000
Minimum value	5,200	14,400	25,800
Maximum value	13,400	26,200	55,000

Source: Chikwana (1989)

[13] The participants criticized the pretest questionnaire as being difficult to choose between the pairs of distributions because they were not significantly different, in their perception. Thus, the standard deviation was increased in the final questionnaire.

Table 4.1: Definition of Questionaire Absolute Risk Intervals (RIA)

No	Interval Range [Low r High r]
1	[$-\infty$, -0.0001]
2	[-0.005, 0]
3	[-0.0001, 0.0001]
4	[0 , 0.0003]
5	[0.0001, 0.0006]
6	[0.0003, 0.001]
7	[0.0006, 0.005]
8	[0.001 , ∞]

While only the income interval corresponding to the producer's actual income possibilities is strictly appropriate, the same questionnaire encompassing all three income levels was administered to all participants, in order to facilitate administration of the survey. Risk coefficients are estimated for each farmer over all three income intervals and tested for their uniqueness and consistency.[14]

The Top Management Workshop participants are not a random sample of farmers. There are no formal selection criteria; the Workshops are publicly advertised and open to all farmers, regardless of size. However, the input forms are a formidable obstacle, implying a detailed knowledge of both the production and financial aspects of the farm. Accordingly, it would be expected that the participants would be better than average managers. Nevertheless, while this group is not truly representative of the entire population of Saskatchewan farmers, they are more representative of the commercial farms which produce the majority of Saskatchewan farm output.

[14] The study questionnaire can be found in Chikwana, Appendix 1.

The questionnaire was distributed at Top Management Workshop meetings when farmers were planning and evaluating changes in their 5-year farm plans. During this time, survey respondents were in a sense a "captive" audience as they were waiting for individual "what if" sessions. Not all Top Management participants stayed for the ensuing "what if" sessions and a few correspond by mail; out of a total of 130 farmers, 100 farmers completed the survey. A total of 79 of the 100 questionnaires were utilized for the following analysis. The other questionnaires were discarded because instructions were not followed or there were errors in the data.

Risk Interval Results

Risk aversion can be measured by the coefficients of 1) Absolute Risk Aversion and 2) Relative Risk Aversion. The Absolute Risk Aversion coefficient, r, has already been defined in Chapter 2. While r, is the most commonly used measure, it is not independent of income level, although it is independent of scaling. Thus, a second measure is included, the relative risk aversion coefficient, which is unitless and be can interpreted as an elasticity.

Absolute Risk Aversion

Note that $r<0$ indicates pure risk loving, $r=0$ indicates pure risk neutrality and $r>0$ indicates pure risk aversion. Thus, Interval 1 $[-\infty,-0.0001]$, Table 4.1, clearly indicates risk loving and Intervals 5 $[0.0001,0.0006]$ to 8 $[0.001,\infty]$ clearly indicate risk aversion. However, the RIA results in overlapping risk intervals and therefore, intervals which are somewhat ambiguous. Interval 2 is relatively risk loving because it spans the 0 to -0.005 r interval; and thus, risk neutrality is not excluded.

Likewise, Interval 3 is defined as relatively risk neutral as it covers the -0.0001 to 0.0001 r interval; it encompasses both risk loving and risk averse behavior.

Many of the values of r found in the literature have been assumed (Table 4.5) In general, the values of [-.00001 to .00001] or [-.0001 to .0001] have been considered almost risk neutral. However, the values of r indicating strong risk aversion are highly variable, as would be expected given the nature of the r coefficient; values of r have ranged from [.000042 to 0.0035] to [.02 to .04]. This is because r is not invariant with respect to income level (Fleisher, 1986) and must be converted to the relative risk aversion coefficient in order to make inter-income comparisons.

Relative Risk Aversion Coefficient

In addition to r, the relative risk aversion coefficients, θ, were also calculated for each of the study respondents.[15] The relative risk aversion coefficient, θ, is unitless and can thus be compared across income levels. As with r, a pure risk lover is defined as $0<\theta$, a pure risk averter is defined as $\theta>0$ and pure risk neutrality is defined as $\theta=0$. Note that RIA blurs these definitions by allowing r or θ to assume a range of values $[r_l, r_u]$ and $[\theta_l, \theta_u]$. Hence, some intervals may clearly denote either pure risk loving or pure risk averse behavior by having both upper and values values negative (purely risk loving) or positive (purely risk averse). But in many cases, the range may

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[15] The relative risk aversion coefficient is defined as

$$\theta = r\, I$$

where θ - relative risk aversion coefficient,
r - absolute risk aversion coefficient and
I - mean net income.

also include 0. In these cases, relative risk lovers are defined as $\theta_l<0$ and $\theta_u<0$ and relative risk averters are defined as $\theta_l\geq$ and $\theta_u>0$.

Representative Farm Risk Clusters

One of the problems in delineating representative farms is that each parameter tends to add another dimension and hence, the total farms are a multiple of the number of variations in each dimension. For example, a farm profile specifying 3 soil zones, 3 farm sizes, 3 debt levels and 3 risk attitudes would require 3x3x3x3 or 81 representative farms--clearly an intractable number. One way around this problem is to use cluster analysis to identify clusters of relatively homogenous farms. Chikwana (1989) used cluster analysis to identify clusters of relatively homogenous farmers. In brief summary, she parametrically ranged the number of clusters from 3 to 8. The best results were 3 clusters listed in Appendix B. The summary characteristics are found in Tables 4.10 to 4.12. Three representative farm types are delineated by farm size according to the risk clusters defined by Chikwana (1989). The risk clusters are

Cluster A: relatively risk loving: low debt, large;
Cluster B: relatively risk neutral: experienced, moderate debt, large and,
Cluster C: relatively risk averse: young, high debt and smaller.

Cluster A--Relatively Risk Loving

Of the total 79 valid surveys, 10 respondents formed Cluster A. This cluster is relatively large, averaging 2090 acres, but featuring relatively low financial leverage- with a debt-asset ratio of 14.9% (Table 4.2). The mean net worth was $1,009,762 and net farm income was $62,327. Using the

lower income level, all of the lower r levels are negative or less than 0. However, only 2 of the upper r levels are negative. Again, using the lower income level, 7 or 70% of cluster A can be classified as relative risk lovers (Table 4.4), but only half are pure risk lovers; there 5 relative risk lovers (ie. possessing a r_u or $\theta_u = 0$).[16] Interestingly, as income level is raised, 70% of Cluster A migrates towards risk neutrality; either becoming neutral (50%) or becoming less loving/adverse (2).

Cluster B--Relatively Risk Neutral

A total 29 respondents form Cluster B. This cluster tends to establish the middle ground between the other two clusters. Cluster B features a moderate net farm income of $33,875, a net worth of $649,192 and tends to span risk loving to risk adverse. While farm size remains relatively large at 1,814 acres, financial leverage is considerably higher than A, the mean debt to asset ratio is 22.72%. This group is far more risk neutral than the other two groups; the mean r range tends to span 0, including a negative lower value and a positive upper value (Table 4.3). However, the mean r values mask the true character of this cluster. Using Table 4.4, Cluster B is characterized by approximately one-half are purely risk neutral or mixed, one-third are purely risk averters and one-fifth are purely risk lovers. However, if relative behavior is used as the criterion ($\theta=0$ is included), then approximately half fall within the relatively neutral category.

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[16] There still remains a slight problem of ambiguity in that perfect risk aversion would also imply an upper level of $\theta<0$.

Cluster C--Relatively Risk Adverse

Cluster C is the largest group encompassing approximately one-half of the total respondents. Cluster C features the smallest farm size at 1,311 acres and the greatest financial leverage--a 37.90% debt to asset ratio. The corresponding mean net worth is relatively low at $234,938. While it is difficult to assess the exact financial status without further information and statistical means of debt-asset ratios can be misleading, it would be expected that many of these farms are in a potentially precarious financial position; many are likely to experience moderate to severe cash flow problems unless there is off-farm family income. Given their relatively precarious financial position, it is not surprising that this cluster is relatively risk averse. Mean r values are positive and much higher than the other clusters (Table 4.3). While the mean r_l associated with the lower income level is -0.00001, this is very close to 0.0. Again using the low income level, very few respondents are pure risk lovers--only 10% but 50% are pure risk averters (Table 4.4). The remaining 40% have r,θ values spanning from slightly negative to very positive (Appendix B). What is surprising, however, is that almost all--98% of the farmers θ values move towards 0 when income levels are increased. Using income level III, 50% of the farmers are relatively neutral and 88% are pure neutral or mixed.

Table 4.2: Summary of Farm and Sociological Statistics, by Cluster Group

	Net Income	Debt/ Asset Ratio	Net Worth	Age	Educ	Farm Size	Farm Experience
	($/year)		($)	(years)		(acres)	(yrs)
Cluster A:							
n = 10							
Mean	$62,327	14.90%	$1,009,762	36.1	5.6	2,090	15.4
StDev	$33,013	12.43%	$69,546	6.36	1.95	939	6.02
Min	$15,567	0.00%	$914,131	25	2	955	6
Max	$111,266	43.00%	$1,114,552	46	8	3,760	25
Cluster B:							
n = 29							
Mean	$33,875	22.72%	$649,192	41.6	5.72	1,814	21.3
StDev	$44,119	11.96%	$94,853	8.71	4.36	798	9.63
Min	($78,426)	3.00%	$426,830	30	0	750	9
Max	$144,473	54.00%	$834,814	63	23	3,980	43
Cluster C:							
n = 40							
Mean	$4,080	37.90%	$234,938	36.2	5.95	1,311	13.2
StDev	$20,454	20.65%	$94,604	6.27	1.96	599	5.29
Min	($62,796)	5.00%	$53,563	24	1	311	4
Max	$38,438	83.00%	$390,124	57	11	2,860	29

Table 4.3: Summary of Mean, Lower and Upper r Ranges, by Cluster Group

	Mean r		Lower r		Upper r	
	Income Level		Income Level		Income Level	
	1	3	1	3	1	3
Cluster A:						
Mean	0.0001	-0.0001	-0.0004	-0.0004	0.0005	0.0001
StDev	0.0009	0.0002	0.0005	0.0004	0.0015	0.0001
Cluster B:						
Mean	0.0007	0.00041	-0.00014	-0.00026	0.0015	0.00107
StDev	0.0018	0.00174	0.00061	0.00055	0.0031	0.00303
Cluster C:						
Mean	0.00095	0.000162	-0.00001	-0.00016	0.00192	0.000485
StDev	0.00173	0.000981	0.00056	0.00035	0.00298	0.001707

Table 4.4: Number of Respondents by Risk Classification

Risk Classification	Risk Cluster θ					
	A		B		C	
	Income Level		Income Level		Income Level	
	1	3	1	3	1	3
Relative: [a]						
Risk Lovers	7	4	12	13	15	9
	70%	40%	41%	45%	38%	23%
Risk Averters	3	1	15	5	25	11
	30%	10%	52%	17%	63%	28%
Mixed/Neutral	0	5	2	11	0	20
	0%	50%	7%	38%	0%	50%
Pure: [b]						
Risk Lovers	2	2	6	6	4	3
	20%	20%	21%	21%	10%	8%
Risk Averters	1	0	10	3	20	2
	10%	0%	34%	10%	50%	5%
Mixed/Neutral	7	8	13	20	16	35
	70%	80%	45%	69%	40%	88%
Move Towards Neutrality From Level I		7		20		39
		70%		69%		98%

[a] Relative Risk Behavior: given a risk interval: $[r_l, r_u]$ and $[\theta_l, \theta_u]$
Risk Lovers: $r_l < 0$ and $r_u \leq 0$ and
Risk Averter: $r_l \geq 0$ and $r_u > 0$.

b Pure Risk Behavior: given a risk interval: $[r_l, r_u]$ and $[\theta_l, \theta_u]$
Risk Lovers: $r_l < 0$ and $r_u < 0$ and
Risk Averter: $r_l > 0$ and $r_u > 0$.

Table 4.5: Summary of Commonly Used Risk Aversion Coefficients

Study	Almost Risk Neutral	Strongly Risk Averse	Outcome Variable	Source of (r)x
1) Holt and Brandt	.005 to .005	.02 to .04	Hog prices (R/cwt)	Assumed based on Kramer and Pope
2) Meyer 1977b		6.0	% Annual return on mutual funds	Assumed based on C.E.
3) Cochran, Robison, and Lodwick		.0015	Annual income from 10-acre block	Elicited
4) Lemieux,	-.00001 to .00001	.000015	After-tax NPV (10 year)	Assumed
5) Tauer, 1985		.0002 to .0003	$100,000 farm purchase	Assumed based on King and Robison
6) Love and Robison	-.00001 to .0002	.0025 to ∞	After-tax annual income	Elicited
7) Rister, Skees, and Black	-.00001 to .00001	.00004 to .00008	Annual returns to grain storage	Assumed based on C.E.
8) Wilson and Eidman 1983	-.0001 to .0001	.0002 to .001	After-tax annual farm income	Elicited
9) Zacharias and Grube	-.0000001 to .000001	.000042 to .0035	Annual farm income	Assumed threshold
10) King and Oamek	-.00001 to .00001	.00005 to .0001	Annual farm income	Elicited
11) Danok, McCarl, and White		.1	Annual farm income	Assumed
12) King and Lybecker	-.0001 to .0001	.0003 to .0006	Annual income from 1,000 cwt dry beans	Assumed
13) Kramer and Pope	.000 to .00125	.02 to .03	Annual farm income	Assumed based on C.E.
14) King and Robison	-.0001 to .0001	.001	Annual income	Elicited
15) Cochran et al.	-.0001 to .0001	.001	Annual income	Assumed based on Love, and Robison: Cochran Robison, and Lodwick
16) Tauer 1986	-.0001 to .001	.001 to ∞	Annual farm income	Elicited
17) Green et al.	.0 to .00125	.005 to .0075	Annual farm income	Assumed

Source: As cited in Raskin, Rob and M.J. Cocharan. (1986). Interpretations and Transformations of Scale for the Pratt-Arrow Absolute Risk Aversion Coefficient Implications for Generalized Stochastic Dominance. American Journal of Agricultural Economics. 68:204-210.

Representative Farm Risk Coefficients

Fundamental to RIA is the definition of the r intervals. The income

distribution is divided into two intervals roughly according to the RIA questionnaire. Note that in the questionnaire that family living and taxes were not deducted. However, in order to properly define cash flows and their linkages with firm growth, family living and tax expenditures must be deducted from cash flows. Thus, the point separating the two segments of the income CDF must take into consideration farm differences. Fortunately, the estimate need only approximate the $40,000 of income used in the study to separate net income levels I and III. The income intervals are defined in Table 4.6. The corresponding risk intervals defined in Table 4.7 are closely based on the risk clusters' mean r values. Cluster A, the relative risk lovers has a lower income r ranging from -0.00040 to 0.00000; allowing this group to vary from moderately risk loving to risk neutral. At higher income levels, the interval is further broadened by maintaining the lower r limit of -0.00040 and expanding the upper r limit to include 0.00010. Nevertheless, at the upper income level, this cluster still is far less risk averse than the other two clusters. Cluster B, the relatively risk neutral group has a lower income level risk interval spanning a very broad r interval of -0.00014 to 0.00155. Curiously, this cluster has upper income, upper r value which is moderately risk adverse. Thus, the upper income risk intervals associated with this cluster will tend not to discriminate as well as those of the other two clusters. The last cluster is the relatively risk averse cluster. At the lower income level the r interval lies entirely within the risk averse range. However, the upper range encompasses both moderate risk loving and aversion r values.

Table 4.6: Income Intervals, by Cluster

Cluster		Income Interval Lower	Upper
A	0	18,000	18,000 150,000
B	0	15,000	15,000 150,000
C	0	12,000	12,000 150,000

Table 4.7: Risk Intervals and Absolute Risk Coefficients

Cluster		Income Level Lower		Upper	
A	0	-0.00040	0.00000	-0.00040	0.00010
B	0	-0.00014	0.00155	-0.00026	0.00107
C	0	0.00001	0.00192	-0.00016	0.00049

Representative Farms Costs and Size

The farm size and debt are based on the previously defined risk clusters; cluster farm size and debt to asset ratios set the general financial parameters. Total farm assets, asset composition, and the various production and technical coefficients are based on the 1987 Top Management Workshop participants. Farm costs are divided into three components according to the production/use units: direct cash costs and fixed per kilogram, direct cash and costs per hectare and general farm overhead cash costs. Direct cash costs per kilogram consist of expenses which are incurred on a unit yield basis such as combining, trucking and storage (Table 4.9). Direct cash costs per hectare are those expenses which are incurred on a unit hectare basis such as fuel and repairs associated with tillage operations and swathing; material costs

including seed, fertilizer, herbicide, insecticide; and other costs including custom work and crop insurance. Direct cash costs are the same for all representative farms. General farm overhead cash costs include property taxes and overhead expenses. The latter includes fuel and repairs of pickup trucks and transportation of chemicals and fertilizer; farmstead power and repairs, legal and accounting fees; and general costs of operating a farm business (Table 4.10). Family living withdrawals are based on an opportunity wage rate of $10 per hour and a flat management fee of $6,000.[17]

Table 4.8: Representative Farm Size, Assets and Debt, Saskatchewan, Brown Soils

Cluster	Farm Size	Total Land Value	Total Machines Buildings	Total Assets	Total Debt	Net Worth	Debt Asset Ratio
	(hectares)			(dollars)			
A	948	763,319	162,949	926,269	185,254	741,015	0.20
B	823	662,565	146,181	808,746	121,312	687,434	0.15
C	594	478,338	115,522	593,860	195,974	397,886	0.33

Table 4.9: Costs of Production, Saskatchewan, Brown Soils

Production/ Cost Item	Wheat Fallow	Wheat Stubble	Summer Fallow
Costs per kilogram:			
Fuel and repair	0.0055	0.0055	0.0000
Capital Recovery Charge	0.0183	0.0183	0.0000
Costs per hectare:			
Direct Costs	61.16	77.14	11.88
Capital Recovery Charge	66.05	64.99	16.63

[17] Average Top Management direct labor requirements are 0.82 hours/ hectare.

Table 4.10: Annual Overhead Costs and Family Living Withdrawals, Brown Soils

Cluster	Total Overhead Costs	Family Living Withdrawals
	($/year)	
A	6,633	13,803
B	5,757	12,773
C	4,157	10,890

Overhead charges 9.80% of total direct costs; and 21.60% of total fuel and repair costs.

Cropping Rotation Strategies

Flexible rotations are based on the available May soil moisture, for farmers decide to crop or fallow based on the amount of soil moisture at planting. Farmers may also have different May soil moisture thresholds levels. May moisture threshold levels chosen for this study are parametrically varied from 70 to 110 mm by 5 mm increments.[18]

Summary

Cluster analysis was used to identify relatively homogeneous clusters of the 1987 Top Management participants based on their risk attitudes, farm size, debt levels and sociological characteristics. Here, relative risk attitudes encompass a range of risk attitudes. Relatively risk loving attitudes includes risk neutrality as well as strong risk loving. Relatively risk neutral attitudes spans moderately risk loving to moderately risk averting attitudes. Likewise, relatively risk averting attitudes encompasses risk neutrality to strong risk aversion. Three risk clusters of representative farms are delineated Cluster A--relatively risk loving; Cluster B--relatively risk neutral and Cluster C--relatively risk averse. Of the total 79 valid

[18] Initial simulations included a range from 40 to 130 mm.

surveys, 10 respondents formed Cluster A. Cluster A features relatively large farms with low debt and a correspondingly high net worth. A total 29 respondents form Cluster B. Cluster B farmers are almost as large as Cluster A but are more typical in terms of net worth and debt leverage. Cluster C is the largest group encompassing approximately one-half of the total respondents. Cluster C farmers are the smallest but possess the greatest financial leverage and the lowest net worths. All of the risk clusters tended to become more risk neutral at high income. This is particularly true of Cluster C--98% of the farmers θ values moved towards 0 when income is increased.

CHAPTER V: SELECTION OF PRICE STABILIZATION PROGRAMS

Key to the investigation are the price policies and the expected price scenarios. Four alternative price stabilization programs are chosen, representing the free market with no government restrictions, perfect stabilization (fixed price), upper and lower bounded prices (price truncation), and lower bounded prices (price insurance). The following sections review 1) the price levels selected for the measuring production response and 2) the definition of the various price stabilization programs.

Choice of Wheat Prices

Two approaches were selected for mapping out three points on the demand curve: historical price patterns and current opportunity costs of production.[19] These values represent a lower price, a middle price and a higher price. In order to facilitate the evaluation of producer response, the middle approach should conform to a long run equilibrium price where zero economic profits are generated at the farm level. The historical wheat prices are used to generate not only the mean but the variance. These are compared to opportunity costs of production.

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[19] The opportunity cost of production approach is based on component pricing of each input including fixed assets using as its price the returns that resource or input could have earned when used in its highest and best use. In the case of machinery, this refers to the forgone interest which could have been earned if capital had been invested elsewhere plus the loss in value (i.e. depreciation), if any. The opportunity of short and intermediate capital was set at 10%. The opportunity cost of capital invested in land was set at 5%. Alternatively, the opportunity cost of land would be its cash rents.

Historical Wheat Prices

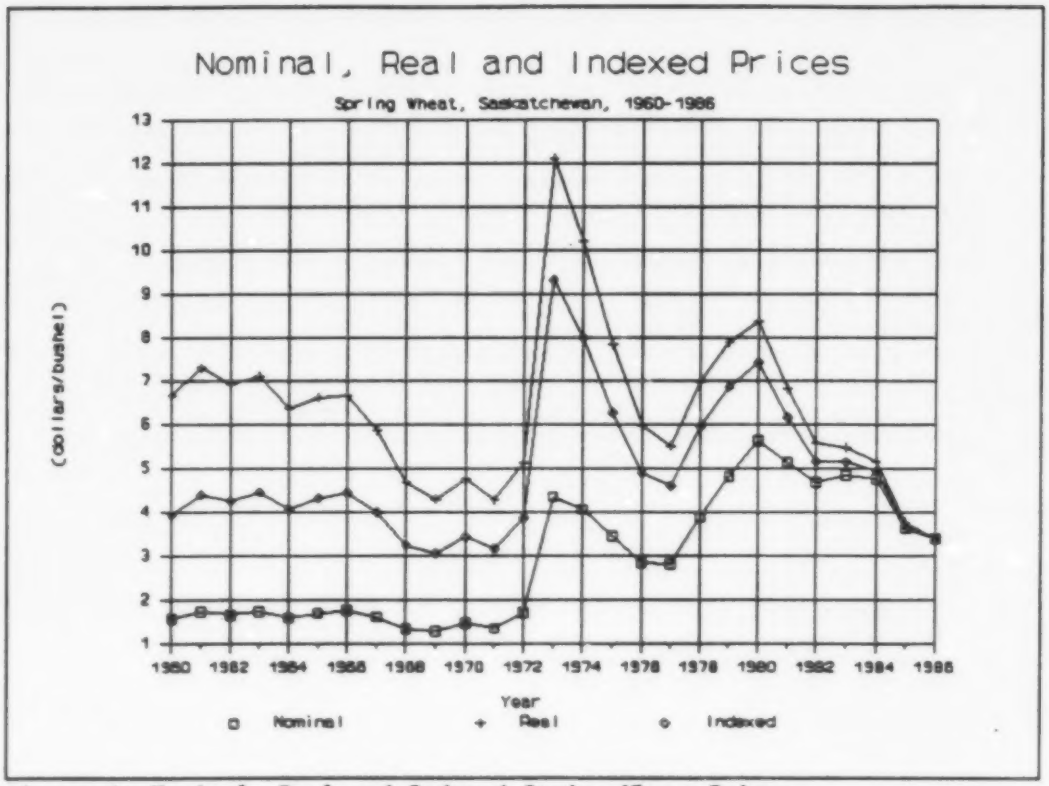

Figure 6: Nominal, Real and Indexed Spring Wheat Prices

In figure 6, nominal Saskatchewan farmgate wheat prices are presented for the years 1960 to 1986. Next, commodity prices are converted to real 1986 prices using the consumer price index and are labelled "real" prices. Finally, real prices are indexed downwards for a two percent increase in cost efficiency; this price is labelled the "real-indexed" price. The two percent increase in cost efficiency is primarily based on increases in technical efficiency and is interpreted as acting like a shift in the supply curve. The mean, real-indexed price of wheat is $180.41/tonne.

Opportunity Cost of Production (COP)

Data from the 1987 Top Management Workshops is used to construct typical costs of wheat for the brown soil zone of Saskatchewan. The COP represents an equilibrium price where each resource just recovers its "opportunity cost" or reservation price. Thus, this price represents an important economic benchmark. Based on 13, 49 and 27 farms, in the brown, dark-brown and black soils, the costs of production are $175.27, $179.31 and $170.86 per tonne, respectively (Table 5.1). Note that these costs are extremely close to the provincial long-run real-indexed wheat prices.[20] The $179.31 per tonne COP can be regarded as an equilibrium where all factors of production would remain stable, there would be no migration of resources and land prices would remain constant.

Price Scenarios

The mean real-indexed wheat price of $180.41 per tonne not only represents a continuation of long run prices, but also represents a nearly equilibrium COP as it is very close to the 1987 COP. While the other two price points are important only in that they facilitate price mapping, it would be convenient if they also represent known values. Consequently, the low price should represent a continuation of current prices (spring, 1988) with government transfer payments. Initial Saskatchewan farmgate wheat prices in 1988 are about $95.53 per tonne. Government transfer payments, including WGSA and the Special Grains payments, add approximately $43.36 per tonne to

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[20] A lower cost of production would be expected for areas producing lower quality wheats such as the black soil zones; the yield and rotational differences have already been factored in through the calculation of the average total costs. Thus, the black soil zone would be expected to have a lower opportunity cost of production.

give a total combined price of $138.89 per tonne--which is conveniently close to the mean less the standard deviation of $56.22/tonne or $138.16/tonne.[21] Accordingly, the low wheat price scenario is set at $138.16 per tonne, the mean less one standard deviation. In order to maintain symmetry, the high commodity price scenario is based on the mean + the standard deviation of $56.22/tonne or $222.67 per tonne.

In addition to mapping the traditional supply response surface with respect to price, a further dimension of price variability must also be considered. While this dimension is continuous, some combinations of expected prices and variability are obviously unlikely. Moreover, each additional combination of expected price and variability adds considerably to overall problem tractability. Hence, the standard deviation of each price scenario is set at a constant coefficient of variation of 31.2%, which is the coefficient of variation of the long run, real-indexed wheat prices. Thus, the standard deviation corresponding to the three price scenarios are $43.05, $56.22, and $69.38 per tonne for the low, medium and high price scenarios, respectively (Table 5.2).

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[21] Note, this assumes that the maximum payouts, of $25,000 and $28,000, respectively for the WGSA program and the Special Grains Program are not reached.

Table 5.1: Long Run, Real-Indexed Saskatchewan Wheat Prices, and 1987 Top Management Costs of Production

	($/Tonne)
1987 Real and Indexed Prices:[1]	
Mean	180.41
s.d.	56.22
C.V.	31.2%
1987 Costs of Production:[2]	
Soils:	
Brown	175.27
Dark Brown	179.31
Black	170.86

[1] Based on nominal prices inflated to 1987 dollars and indexed downwards for a 2% increase in cost efficiency.
[2] Based on 1987 Top Management truncated mean costs.

Table 5.2: Wheat Price Scenarios[a]

Price Scenario	Expected Price	Standard Deviation[b]	Price Floor	Price Ceiling[c]
		($/tonne)		
Low	$180.47	$56.22	$124.25	$236.69
Medium	$138.16	$43.04	$95.12	$181.20
High	$222.67	$69.37	$153.30	$292.04

[a] Low and prices are based on the historical mean ±75% of the standard deviation.

[b] Standard deviations are based on a coefficient of variation of 31.2%.

[c] Price floors and ceilings are based on the mean ± of the standard deviation.

Price Stabilization Programs

Four price policies are constructed: one of no price intervention and three alternative price stabilization programs are constructed. In Table 5.2, the price expectations of the various price scenarios are defined. While the standard deviation of the middle price scenario is set at the historical

level, the other two standard deviations are based on a coefficient of variation of 31.2%. Price floors (truncated and insurance) and ceilings (truncated) are defined as the following. The price floor is set at the expected price minus one standard deviation while the price ceiling is set at the expected price plus one standard deviation.

The first price policy, Policy A, assumes no price intervention or no stabilization program and serves as a benchmark for comparing other programs. The second case, Case B--Truncated Price Policy, assumes a price floor and a price ceiling. Accordingly, 68 percent of the price variability remains under the Truncated Price Policy. Because of the symmetry associated with the truncation process, the mean remains unaltered. The third case, Case D--Price Insurance, incorporates a price floor and retains 84 percent of the price variability. In order to adjust for the accompanying bias of Case D, prices are adjusted downwards by the lower truncation area. The last policy, Policy B--Fixed Price Policy, assumes complete price stabilization, with prices fixed at the expected scenario price.

Table 5.3: Simulated Statistics of Stabilization Programs, by Price Level

Program Policy	Expected Price Scenario Low	High	Medium
No Stabilization:			
Mean	138.16	180.41	222.67
StdDev	44.11	55.14	68.41
Min	13.72	1.60	16.20
Max	348.02	263.38	428.46
B) Upper & Lower Bounded Stabilization (Truncated):			
Mean	138.16	180.41	222.67
StdDev	30.75	40.36	49.66
Min	94.48	126.40	155.16
Max	180.48	238.68	293.74
C) Lowed Bounded Stabilization (Insured):			
Mean	138.16	180.41	222.67
StdDev	37.25	46.65	58.08
Min	93.95	125.43	151.41
Max	262.88	350.00	428.58
D) Complete Stabilization (Fixed)			
Fixed	138.16	180.47	222.67

While the statistics in Table 5.3 reveal some of the characteristics of the alternative stabilization policies, they mask much of the impact born by the producer. While the standard deviations are reduced by approximately 30 to 40% by stabilizing prices, this does not adequately measure the true impact of the price insurance or price truncation. The simulated price distributions for each of the four alternative policies are shown in figures 7, 8 and 9 for the three alternative expected price scenarios, respectively. It should be noted that the histogram intervals are broadly defined so that the histograms

are only approximate. The no stabilization prices are normally distributed and the histograms generally display the required normal shape. The truncated price policy is created by truncating the distribution for those points which lie beyond ± one standard deviation from the mean. Thus, the corresponding truncated distributions should display two equally sized blips at each of the truncation points. Because of the errors in the histogram techniques, the differences between the two blips are exaggerated--they are much closer than actually shown. The price insurance policy incorporates the same price floors as the truncated price policy less the insurance premium which is 0.0884 times the standard deviation. Thus, the price insurance policy should display a "blip" the same size as the price truncation policy but slightly below the lower price floor.

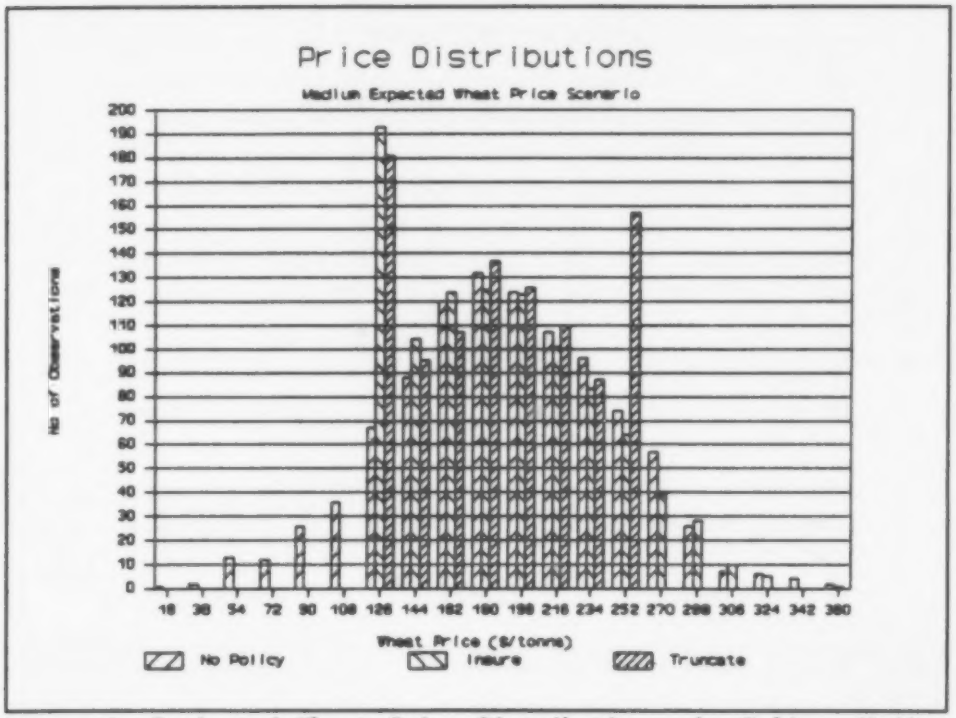

Figure 7: Estimated Wheat Price Distributions, by Policy, Medium Price Scenario

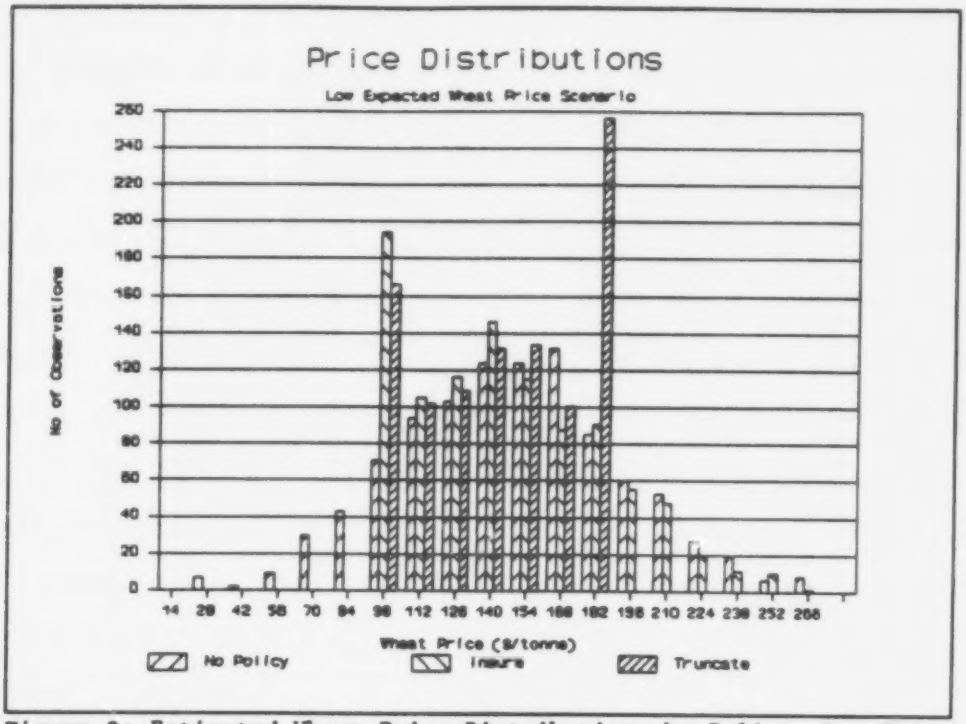

Figure 8: Estimated Wheat Price Distribution, by Policy, Low Price Scenario

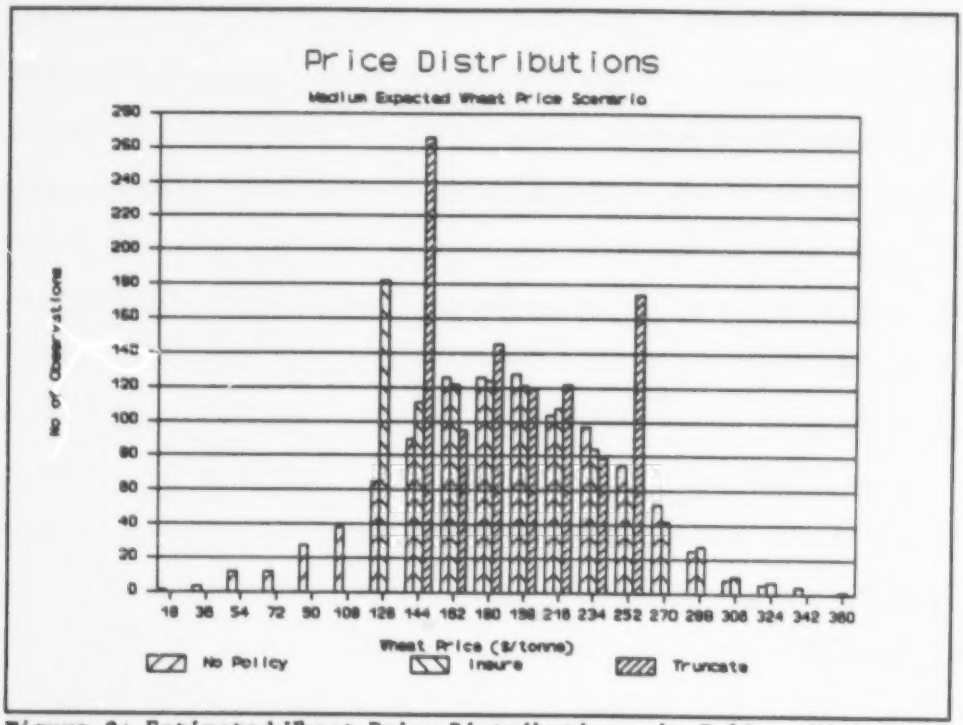

Figure 9: Estimated Wheat Price Distributions, by Policy, High Price Scenario

Impact of Yield and Price Variability on Gross Income Variability

Thus far, it has been maintained that risk is manifested as variability in net farm income. In Chapter 4, the weather-induced variability on wheat/fallow and continuous cropping yields is estimated. Likewise, price variability has been estimated in the previous section. This section reviews how yield and price variability generate total gross income variability and demonstrates the impact of a total reduction in either yield or price variability on total income variability, assuming independence of price and yields. Gross income in Table 5.4, is the simple product of price and yield. The variability of gross income is far more complex and must take into account all the various squared interaction terms. Mean yields from Chapter 3 are 2060 and 1606 kg/h, with corresponding standard deviations of 386 and 474 kg/h respectively. It is also assumed that mean wheat prices are $0.18/kg with a standard deviation of $0.06 /kg. Gross incomes are $379.93 and $296.28/h respectively, for W-F and Continuous rotations. The corresponding standard deviations are $136 and $126/h with CV's of 36% and 42%. There are several important relationships to note between individual price, yield and gross income variability. First, gross income variability rises but not nearly as much as would be intuitively expected. Given individual CV's of 31% and 19%, respectively for price and W-F yield, the CV of gross income is 36%, not a great deal larger than the CV of price. The individual CV's for price and continuous wheat yields are 31% and 33% respectively and the corresponding CV of gross income is 42%. Thus, while the CV of continuous yield is considerably higher than the CV of W-F (30% v 19%), the gross income CV is only marginally higher (42% v 36%). Secondly, the elimination of price variability still leaves yield variability--and the overall reduction in the

CV is relatively small. The latter has particularly important implications for stabilization programs which address only price or yield variability; these policies will not be nearly as effective in reducing income variability as programs which directly address income.

Table 5.4: Estimated Variability in Gross Income

	Price	Yield	
		W-F	Continuous
	($/k)	(k/h)	
Mean	$0.18	2060	1606
Var	0.003160	149169	224821
StDev	$0.06	386	474
CV	31%	19%	30%
E(P*Y)		$379.93	$296.28
Var(P*Y)		$18,486	$15,804
StDev		$136	$126
CV		36%	42%

Summary

Three price scenarios and four price policies are delineated. The three price scenarios include 1) a middle price scenario which represents an historical mean adjusted for inflation and technology; this price scenario is also very close to a COP equilibrium price; 2) a low expected price based on one standard deviation below the mean and 3) a high expected price based on one standard deviation above the historical mean. In each scenario the coefficient of variation is held constant at 31% of the mean, the historical average. Four alternative price stabilization programs are chosen, representing the free market with no government restrictions, upper and lower

bounded prices (price truncation), and lower bounded prices (price insurance) and perfect price stabilization (fixed price).

Chapter 3 estimates of yield variability are combined with wheat price variability. Estimated gross income variability is 36% and 42% respectively, for the wheat-fallow rotation and continuous wheat, respectively. Since both price and yield variability are more or less equally important in determining gross income variability, the elimination of one without a corresponding reduction in the other will generate only modest decreases in gross income variability. The obvious implication is that government programs must address both income and yield variability simultaneously before any progress can be made in reducing farm income risk.

CHAPTER VI: RESULTS

Introduction

In brief summary, a real time, bio-economic simulator is constructed incorporating stochastic May soil moisture and yield relationships and deterministic farm costs. The seeding decision for each of the four fields is based on whether the May soil moisture, M_t, is above or below M_c, the critical soil moisture threshold. If $M_t \geq M_c$, then the field is seeded, if $M_t < M_c$, then the field is fallowed. If each producer cluster were perfectly risk neutral, then no further analysis would be needed; each producer would choose the expected profit maximizing strategy. Likewise, actuarially sound stabilization programs would have no long-run production effect. However, producers were found to possess differing and distinct risk attitudes--at least at lower income levels. Three clusters were identified: Cluster A-relatively risk loving, Cluster B-relatively risk neutral and Cluster C-relatively risk adverse. Four stabilization policies are formulated: no policy, price truncation, price insurance and a fixed price. The cdf of annualized returns of each strategy and farm cluster are re-simulated for each M_c strategy. A total of 3 clusters x 3 price levels x 4 price policies x 9 M_c strategies generates a total of 324 simulations for one soil zone. Given price level, and stabilization price policy, each pair of the nine M_c strategies are examined for stochastic efficiency according to the cluster risk attitudes. In the case of multiple stochastic efficient M_c^* strategies, each efficient strategy is assigned the same weight and averaged. The impact of alternative risk attitudes on acreage and production decisions is assessed by comparing each M_c^* strategy of each risk cluster with the perfectly risk neutral attitude or the profit maximizing strategy. By parametrically varying

wheat prices, production response can be mapped and the percentage difference over the benchmark profit maximization response determined. Next, the corresponding price elasticities of acreage and production response are estimated. Finally, producer preferences as to price stabilization programs are assessed.

The Relationship Between M_c and Cropping Intensity

By parametrically varying M_c from 40 to 120 cm, the relationship between

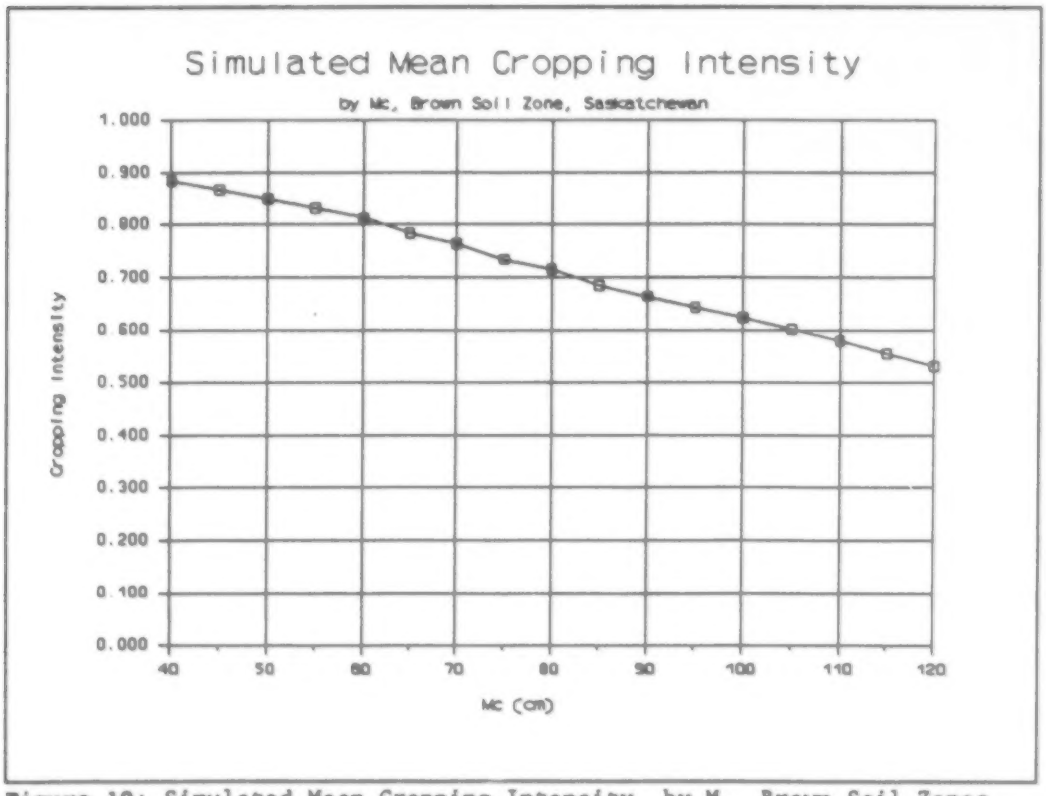

Figure 10: Simulated Mean Cropping Intensity, by M_c, Brown Soil Zones

M_c and cropping intensity can be mapped (figure 10). As expected, increasing M_c results in decreased cropping intensity but somewhat surprisingly, the simulated relationship between M_c and cropping intensity appears to be nearly

linear. Since cropping intensity depends upon the number of years $M_t \geq M_c$, a normal distribution of rainfall should result in a curvilinear relationship as the chances of M_t exceeding Mc should diminish rapidly as Mc increases. Apparently, the fallowed years build up sufficient moisture, increasing the probability of $M_t \geq M_c$ and preserving the appearance of linearity.

Cropping Intensity and Yields

Another important relationship is the relationship between M_c and wheat yields. In validating the yield module, a convenient yield benchmark is the 50% cropping intensity which allows approximate comparisons with the wheat on fallow.[22] The mean yield associated with a mean 53.0% cropping intensity is 1,976 kg/h with a standard deviation of 600 kg/h (Table 6.0). This compares very favorably with the 1988 Top Management Workshop results of 1991 kg/h of wheat on fallow for the same soil zone (Schoney et al, 1988, p 37).

In addition, the sources of yield variability can be decomposed into 1) direct precipitation effects on May soil moisture and yield, 2) the combined effects of the May precipitation and, 3) yield error terms. In the simple spreadsheet simulation in Chapter 4, yields are simulated based on actual real time precipitation and without error terms: the mean wheat yield associated with a 50% rotation is approximately 2060 kg/h with a standard deviation of 386 kg/h. In the bio-economic simulations, a 53.0% cropping intensity results in a yield standard deviation of 600 kg/h (Table 6.0). Hence, the direct weather effects contribute roughly 64% of the total variation in yield and the

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[22] If two fallow years following each other are disallowed, then the comparisons would be direct and exact.

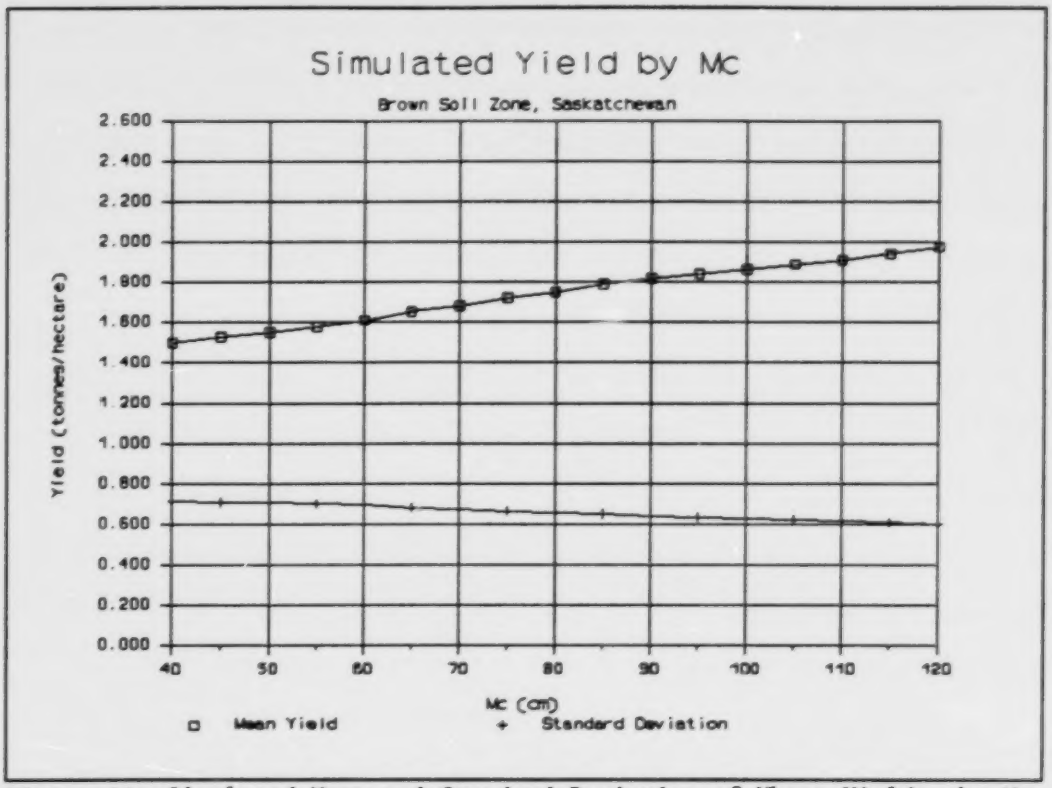

Figure 11: Simulated Mean and Standard Deviation of Wheat Yields, by M_c, Brown Soil Zone

error terms associated with May soil moisture and yield contribute the remaining 36%.

In figure 11, the relationship between mean yield and M_c also appears to be nearly linear. This is not surprising in that mean yields are a convex combination of fallow and stubble yields. Likewise, the standard deviation of yields increases in a nearly linear fashion with M_c.

Table 6.0: Simulated Mean Cropping Intensity and Mean Yield By M_c, Brown Soils, Saskatchewan

M_c Level	Mean Cropping Intensity	Yield	
		Mean	StDev
		(kg/h)	
40	88.4%	1,501	715
45	86.6%	1,527	710
50	84.9%	1,553	705
55	83.1%	1,582	700
60	81.3%	1,611	694
65	78.3%	1,653	682
70	76.3%	1,682	676
75	73.4%	1,722	664
80	71.5%	1,750	658
85	68.4%	1,792	650
90	66.3%	1,820	640
95	64.3%	1,844	635
100	62.3%	1,867	628
105	60.1%	1,890	624
110	58.0%	1,910	618
115	55.5%	1,943	609
120	53.0%	1,976	600

Expected Net Income and Variability of Net Income

The cdf's of net income are displayed in Appendix Table C and the summary statistics are presented in Table 6.1 In brief review, farm net worth is simulated over a 15-year period assuming that assets are periodically replaced and labor and management charges are removed as family living withdrawals. Net farm growth is measured by increased net worth over the period. Increased net worth is annualized to an annual return to equity capital and thus, is a return to entrepreneurship. As can be expected, the low price scenarios generate an expected erosion in net worth and annualized incomes are accordingly negative. When prices are set at their expected and high price scenarios, there is growth and annualized incomes are accordingly

positive.

The price policies are designed to be actuarially sound so that the price policy and the corresponding premium should not influence the mean annualized return. In addition, no asymmetry between borrowing and lending rates is allowed (ie they are set at the same rate) and tax rates are held constant. Thus, the mean annualized incomes should be virtually identical between price policies; the only variation should be from the randomness associated with the simulation process. In general, the mean annualized incomes are very close--generally, within ±$150 of each other (Table 6.1). This is important because the M_c intervals are very small--only 5 mm, and the corresponding differences in mean annualized incomes are also very small, about ± $500.

Income variability is a complex combination of yield variability, seeded acreage variability and price variability. Using Cluster B and the 90mm M_c threshold, the coefficient of variation is 69%, 74% and 76%, respectively for the low, medium and high price levels. The contribution of yield variability to annualized net income can be established by comparing the standard deviation of net income generated by no price policy with the standard deviation associated with a fixed price (no variability in price) policy. This can be readily evaluated using Table 6.1. For example, using the 90mm M_c level, Cluster B and the base price scenario, the no price stabilization policy results in a standard deviation of $14,459; the fixed price scenario results in a standard deviation $10,690. Hence, removing all price variability results in a reduction in the coefficient of variation in net farm

income of 25%.[23]

Table 6.1: Mean and Standard Deviation of Simulated Income, by θ_{ij}, Cluster, Price Policy and Price Level, Brown Soils of Saskatchewan

Cluster	Price Policy	Price Level	Statistic	No. of Cases								
				60	70	75	80	85	90	95	100	105
0	No Price	Low	Mean	(11,960)	(11,621)	(10,523)	(10,139)	(9,844)	(9,612)	(9,990)	(10,160)	(10,513)
			Stdev	12,633	12,728	12,949	12,622	12,202	12,011	11,695	11,521	11,446
0	No Price	Base	Mean	16,469	16,869	17,211	17,253	16,911	16,682	15,636	15,061	14,133
			Stdev	12,633	12,961	13,462	13,291	13,091	13,055	13,431	13,998	13,805
0	No Price	High	Mean	64,862	66,939	65,081	64,847	64,976	65,152	62,117	60,763	59,262
			Stdev	33,895	33,960	33,173	31,890	31,736	31,686	31,396	30,859	30,691
0	Truncated	Low	Mean	(11,669)	(11,168)	(10,280)	(9,870)	(9,598)	(9,366)	(9,653)	(9,840)	(10,327)
			Stdev	10,928	10,767	10,570	10,302	10,020	10,010	9,866	9,809	9,522
0	Truncated	Base	Mean	16,356	16,867	17,204	17,265	17,067	16,841	15,720	15,295	14,369
			Stdev	13,084	13,435	13,955	13,788	13,643	13,656	13,934	14,513	14,345
0	Truncated	High	Mean	64,793	66,829	64,838	64,628	65,230	65,519	61,953	60,595	58,941
			Stdev	30,375	30,297	30,007	28,744	28,634	28,888	28,582	28,044	28,047
0	Insurance	Low	Mean	(11,677)	(11,121)	(10,262)	(9,872)	(9,565)	(9,356)	(9,631)	(9,903)	(10,303)
			Stdev	12,216	12,066	11,791	11,521	11,276	11,010	10,912	10,793	10,700
0	Insurance	Base	Mean	16,523	16,868	17,202	17,295	17,107	16,735	15,727	15,269	14,409
			Stdev	12,758	12,997	13,396	13,259	13,063	13,053	13,313	13,756	13,666
0	Insurance	High	Mean	64,796	66,779	64,778	64,499	65,020	65,252	61,880	60,567	58,888
			Stdev	31,198	31,441	31,098	30,797	30,645	30,591	30,501	30,035	29,621
0	Fixed	Low	Mean	(11,967)	(11,612)	(10,510)	(10,101)	(9,810)	(9,583)	(9,899)	(10,062)	(10,461)
			Stdev	9,330	9,162	8,963	8,798	8,528	8,327	8,209	8,014	7,938
0	Fixed	Base	Mean	16,616	16,997	17,173	17,269	16,990	16,761	15,813	15,343	14,251
			Stdev	13,665	13,963	13,911	13,765	13,551	13,376	13,371	13,579	13,634
0	Fixed	High	Mean	64,763	66,813	64,866	64,674	65,276	65,538	61,991	60,577	58,969
			Stdev	17,761	17,648	17,574	16,844	16,638	16,546	16,387	15,953	15,882
0	No Price	Low	Mean	(7,390)	(6,858)	(6,079)	(5,760)	(5,468)	(5,441)	(5,501)	(5,780)	(6,068)
			Stdev	11,161	11,049	10,891	10,736	10,593	10,439	10,327	10,002	9,956
0	No Price	Base	Mean	17,677	17,702	17,999	18,035	17,765	17,566	16,803	16,130	15,326
			Stdev	13,677	13,976	13,977	13,911	13,663	13,539	13,565	13,849	13,721
0	No Price	High	Mean	62,886	64,871	62,996	61,991	61,967	62,311	59,621	58,443	57,175
			Stdev	19,796	19,665	19,269	19,004	18,868	18,693	18,486	18,109	17,799
0	Truncated	Low	Mean	(7,090)	(6,616)	(5,872)	(5,510)	(5,266)	(5,263)	(5,323)	(5,529)	(5,958)
			Stdev	9,687	9,367	9,177	8,997	8,882	8,692	8,563	8,342	8,266
0	Truncated	Base	Mean	17,631	17,868	18,071	18,170	17,888	17,522	17,099	16,423	15,549
			Stdev	13,618	13,826	13,870	13,783	13,665	13,703	13,828	13,826	13,897
0	Truncated	High	Mean	61,963	63,960	61,962	61,791	62,020	62,370	59,673	58,443	56,844
			Stdev	17,861	17,627	17,267	17,144	16,988	16,711	16,625	16,184	16,015
0	Insurance	Low	Mean	(7,080)	(6,597)	(5,829)	(5,516)	(5,263)	(5,256)	(5,306)	(5,540)	(5,987)
			Stdev	10,653	10,475	10,227	10,002	9,789	9,566	9,473	9,293	9,115
0	Insurance	Base	Mean	17,602	17,677	18,095	18,139	17,964	17,575	17,067	16,382	15,566
			Stdev	14,302	14,574	14,567	13,953	13,776	13,625	13,673	13,586	13,697
0	Insurance	High	Mean	61,867	63,916	61,886	61,688	62,059	62,373	59,176	58,102	56,618
			Stdev	18,062	18,621	18,274	18,028	17,760	17,529	17,260	17,044	16,880
0	Fixed	Low	Mean	(7,214)	(6,698)	(6,071)	(5,737)	(5,468)	(5,438)	(5,501)	(5,695)	(6,025)
			Stdev	6,188	7,998	7,760	7,560	7,405	7,229	7,144	6,959	6,892
0	Fixed	Base	Mean	17,388	17,552	17,766	18,058	17,812	17,642	16,999	16,292	15,429
			Stdev	11,710	11,928	11,995	11,867	11,679	11,665	11,618	11,365	10,267
0	Fixed	High	Mean	61,937	61,961	62,009	61,843	61,994	62,327	59,635	58,354	56,648
			Stdev	15,662	15,191	14,910	14,660	14,437	14,236	14,197	13,849	13,718
1	No Price	Low	Mean	(9,880)	(9,673)	(9,132)	(7,866)	(7,667)	(7,667)	(7,756)	(7,997)	(8,106)
			Stdev	8,061	7,972	7,868	7,763	7,645	7,526	7,436	7,219	7,185
1	No Price	Base	Mean	8,888	8,991	9,265	9,291	9,096	8,898	8,602	7,931	7,226
			Stdev	11,315	11,362	10,956	10,626	10,383	10,426	10,296	10,026	9,903
1	No Price	High	Mean	30,941	29,429	28,720	26,561	26,099	25,913	25,671	24,022	23,049
			Stdev	14,280	14,198	13,893	13,716	13,612	13,448	13,362	13,079	12,839
1	Truncated	Low	Mean	(9,863)	(9,699)	(7,966)	(7,798)	(7,528)	(7,511)	(7,560)	(7,716)	(7,990)
			Stdev	6,847	6,747	6,625	6,493	6,411	6,274	6,188	6,021	5,966
1	Truncated	Base	Mean	8,895	9,012	9,317	9,368	9,182	8,971	8,567	8,128	7,497
			Stdev	9,628	9,647	9,584	9,495	9,362	9,182	9,188	8,948	8,875
1	Truncated	High	Mean	28,567	26,973	26,375	24,439	25,865	25,311	24,757	23,917	22,861
			Stdev	12,841	12,718	12,569	12,374	12,268	12,041	12,007	11,662	11,559
1	Insurance	Low	Mean	(9,836)	(9,687)	(7,968)	(7,798)	(7,526)	(7,509)	(7,556)	(7,726)	(7,976)
			Stdev	7,693	7,568	7,388	7,219	7,068	6,908	6,837	6,707	6,579
1	Insurance	Base	Mean	8,836	9,033	9,335	9,301	9,225	8,960	8,592	8,096	7,509
			Stdev	10,468	10,354	10,211	10,072	9,937	9,832	9,726	9,515	9,453
1	Insurance	High	Mean	28,692	26,926	26,513	24,566	25,750	25,267	24,564	23,774	22,867
			Stdev	13,271	13,447	13,198	13,006	12,911	12,652	12,558	12,316	12,169
1	Fixed	Low	Mean	(9,885)	(9,679)	(8,188)	(7,867)	(7,671)	(7,658)	(7,696)	(7,836)	(8,071)
			Stdev	5,866	5,761	5,695	5,636	5,563	5,278	5,176	5,023	4,976
1	Fixed	Base	Mean	8,767	8,963	9,261	9,302	9,138	8,863	8,515	8,033	7,411
			Stdev	8,452	8,322	8,152	7,966	7,852	7,776	7,658	7,461	7,410
1	Fixed	High	Mean	28,543	26,960	26,595	24,674	25,935	25,388	24,728	23,906	22,899
			Stdev	11,116	10,964	10,761	10,581	10,438	10,275	10,218	9,996	9,901

[23] Note that gross income variability is a complex function of yield and price variability. Accordingly, if yield variability were eliminated, the result would be much less than 75% of the total variability.

Supply Response Under Perfect Risk Neutrality

Before appraising the estimated supply response elasticities under risk neutrality, a note of caution is in order: this analysis focuses solely on the adjustment of cropping intensity to varying expected prices, neither cross price substitution effects nor changes in land base are allowed. The latter includes conversion of land not in cereal production to cereal production. In addition, this analysis is normative in nature, unlike most supply response studies based on econometric models which are positive in nature. In general, it would be expected that a normative model would generate more elastic supply responses. However, since land is fixed and other cropping possibilities are excluded, the estimated supply response elasticities should be less elastic than they would be otherwise. Thus, the inherent limitations associated with a positive model and the more limiting underlying assumptions as to a diminished set of production opportunities should be offsetting, with the net bias unknown.

One of the most important aspects in reviewing supply response is the underlying length of run. While a long-run dynamic model is used to capture the full dynamic effects of changes in cropping patterns, the supply price elasticities are essentially short to intermediate run in nature because land is fixed and technology is held constant, but fixed costs of machine ownership are treated as variable. In addition, there are no lags in price expectations--which would tend to support an intermediate length of run.

In Chapter 4, average variable costs are nearly constant per unit over farm size. Thus, marginal costs are also nearly constant across farm size and representative farms will respond in the same fashion under risk neutrality.

This is the case. Under perfect risk neutrality or unrestricted profit maximization, all clusters would choose the 90, 80 and 75 mm M_c strategies for the \$141.93, \$181.23 and \$224.76 per tonne wheat prices, respectively (Table 6.3a). Based on mean acreages and the two price intervals, this corresponds to elasticities of acreage response to a price of 0.31 and 0.12, respectively (Table 6.8). Decreasing acreage response to increasing price would be expected because as cropping intensity is increased, there is less and less likelihood of fallow ground remaining. Because of the decreasing yields with respect to cropping intensity, the corresponding yield response elasticities are considerably less--0.14 and 0.05 respectively. These estimates compare reasonably well with recent estimates by Siemans and Clark (1989) and earlier estimates by Meilke (1976): Siemans and Clark (1989) estimate the short supply elasticity as 0.15 while Meilke (1976) estimated the acreage supply elasticity to final price as 0.35. All of these studies are based on models which intrinsically assume an underlying producer attitude of perfect risk neutrality. However, as was shown, most producers tend to posses non-neutral attitudes towards risk, many having risk attitudes which span a range of possibilities--that is varying from risk adverse to risk loving, according to their income level.

While all farms have similar variable costs, average total costs deline because of some "lumpy" fixed costs.[24] This combined with differing risk

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[24] Direct operating and fixed costs of machine ownership are held constant per unit across farm size. The latter includes all machines directly used in the production process such as most tractors, all tillage, harvesting, and processing machines, and most trucks used in transporting grain. Indirect overhead costs are treated as "lumpy": costs. Indirect overhead costs include operating and ownership costs associated with pickup trucks; the shop; a portion of larger trucks; legal and accounting expenses, the business portion of the household and a number of miscellaneous expenses. Thus, as farm size increases, average total costs decline because of the lumpiness of indirect overhead costs.

attitudes means that each representative farm will respond differently because of differing attitudes and differing income cdf's. The following sections review individual risk efficient cropping strategies for each risk cluster in response to varying prices and price stabilization policies. Associated with each risk efficient cropping strategy is a distribution of efficient mean cropping intensities, acreages and yields. These will be used to map acreage and yield response to price and price stabilization programs.

Table 6.2: Summary of Selected Studies of Wheat Acreage Supply Price Elasticities

Researchers	Area	Length of Run	
		Short Run	Long Run
Meilke (1976)*	Western Canada	0.35	0.69
Jolly & Abel (1976)*	Western Canada		1.16
Colman (1979)*	Western Canada	0.56	
Morzuch et al (1980)	North Dakota		0.77
	Montana		0.13
Siemens & Clark (1989)	Saskatchewan	0.15	0.89

Sources:
For those under *:

Glenn, Marcia and Ralph Lattimore. 1983. "Canadian Acreage Response to Grain Storage Subsidies," **Canadian Journal of Agricultural Economics** 31:245-248.

Morzuch, B.J., R.d. Weaver, and P.G. Helmberger, (1980). "Wheat Acreage Supply Response under Changing Farm Programs." American Journal of Agricultural Economics 62:29-37.

Siemens & Clark (1989). Personal communication with Steve Clark.

Risk Efficient M_c Strategies

In order to find risk efficient M_c strategies, each of the nine income

cdf functions is compared, one pair at a time, for stochastic dominance with respect to a function. Each risk cluster has its own unique income cdf's due to differing farm size and financial structure and differing risk attitudes. The pairwise comparisons for the no-price stabilization policy are presented in figure 12. Using the row as the "defender" and the columns as the "challenger," and moving along a defending row, a "1" indicates that the challenger is dominated by the defender, while a "-1" indicates that the challenger dominates the defender.[25] A zero indicates that neither one dominates. In figure 12, the risk efficient M_c strategy is the 80 mm M_c level.

Strategy M_c

mm	65	70	75	80	85	90	95	100	105
65	0	-1	-1	-1	-1	-1	1	1	1
70	1	0	-1	-1	-1	0	1	1	1
75	1	1	0	-1	1	1	1	1	1
80	1	1	1	0	1	1	1	1	1
85	1	1	-1	-1	0	1	1	1	1
90	1	0	-1	-1	-1	0	1	1	1
95	-1	-1	-1	-1	-1	-1	0	1	1
100	-1	-1	-1	-1	-1	-1	-1	0	1
105	-1	-1	-1	-1	-1	-1	-1	-1	0

Efficient set = 80

Figure 12: Cropping Strategies Dominance Matrix, No Price Policy, Brown Soils, Saskatchewan

The risk efficient M_c strategies are presented in Table 6.3 by cluster and wheat price level. The unrestricted profit maximizing case represents those

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[25] If the columns are used, then the signs are reversed and a "-1" indicates dominance.

farmers who were perfectly risk neutral and would use maximization of profits as their sole choice criterion. This is used as the benchmark in the appraisal of the following risk efficient M_c strategies. At low income levels, Cluster A represents relative risk lovers, Cluster B represents relatively risk neutral producers and Cluster C represents relatively risk adverse producers. At higher income levels, the relative risk preferences are more ambiguous, spanning risk loving to risk aversion but tending towards relative risk neutrality.

Cluster A

Low Prices. Under the low price scenario most M_c^*'s consist of a unique M_c, with the sole exception being the no price stabilization scenario. Cluster A, as relative risk lovers, prefer more intensive and riskier cropping intensities at lower price levels; at the low wheat price scenarios of \$141.93/t, this risk cluster prefers M_c's which are 5 to 20 mm less than the unrestricted profit maximizing M_c (Table 6.3a). For example, using the low price scenario, the mean profit maximizing crop acreage is 629 hectares (Table 6.5). Due to their risk preferences, this group would seed approximately 34 hectares more on the average, or about a 5% increase in acreage (Table 6.6).

The various price stabilization policies result in increasing crop intensity as shifts in price policies move from no-price policy, to price truncation, to fixed prices (figure 12). This is as expected in that when price risk is reduced, the risk lover will compensate by choosing risk increasing strategies, even if they are less profitable. Increased cropping intensity translates into relatively modest acreage increases (Table 6.5). Not all price stabilization policies result in the same acreage response. A risk lover would tend to avoid strategies affecting the upper end of an income

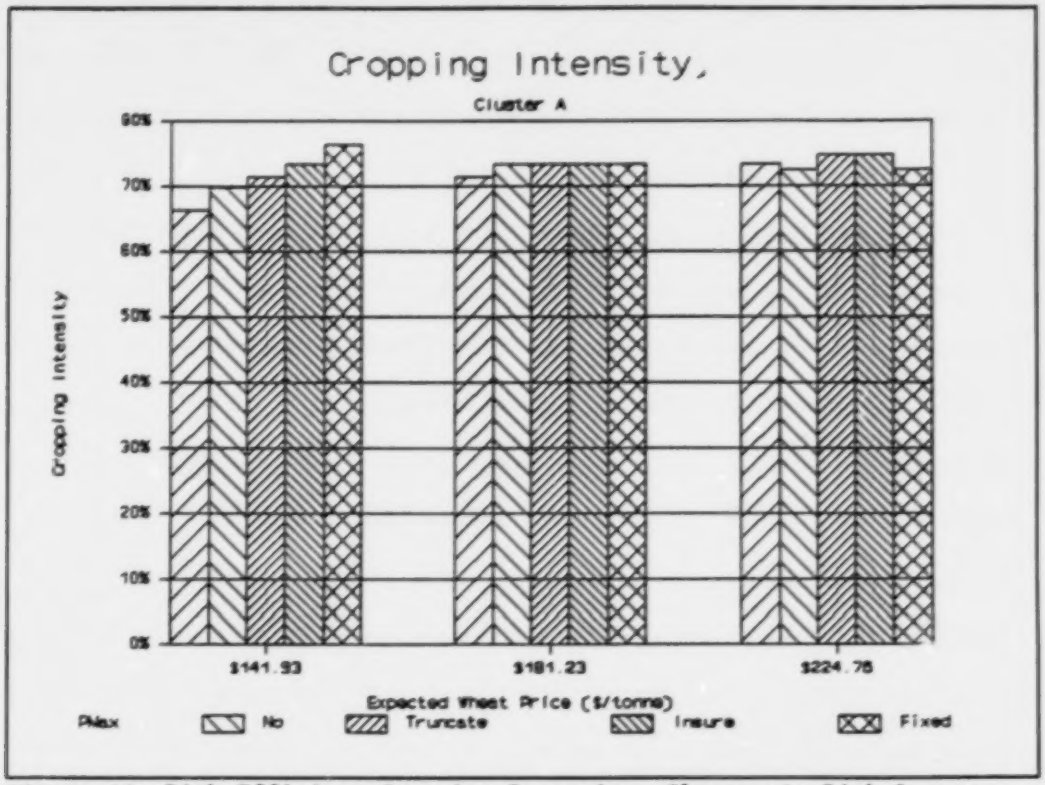

Figure 13: Risk Efficient Cropping Intensity, Cluster A--Risk Lovers

distribution. Thus, risk lovers would tend to particularly dislike a truncation policy which truncates both tails of the distribution: this type of program allows the risk lover the least freedom to compensate for reduced risk by expanding acreage because potentially high incomes are also excluded. This is the case. Because of the truncation effect, there is little acreage effect: using the no-price policy as the benchmark and the low price interval, a price truncation program results in only a 2.2% increase in mean acreage (Table 6.6) and a corresponding 1% increase in mean annual wheat production

(Table 6.7).[26] In sharp contrast, both the risk insurance and the fixed price policies allow the producer to compensate. Thus, as price risk is reduced, the producer responds by expanding acreage over the same interval by 4.9% and 9.1%, respectively.

Mid and High Prices. While there is a small and significant production response over the perfectly risk neutral attitude, there is no significant acreage or production response due to changing price policy in response to increasing wheat expected price levels to $181.23/t. When the expected price is increased to $224.76/t, there are multiple M_c's in the optimal risk efficient set. Thus, without more information, ie. narrower risk intervals, the stochastic dominance with respect to a function technique can not sufficiently discriminate between the various M_c strategies. Hence, there is no significant price response either over risk neutrality or with respect to price policy.[27] This is as expected in that at higher income levels, Cluster A becomes relatively risk neutral. Moreover, because the r interval encompasses both risk loving and risk averting attitudes, multiple M_c would be expected in the efficient set.

Cluster B

Low Price. Cluster B is the relatively risk neutral cluster, with r intervals spanning both risk loving and risk averting r values. The lower income r interval was set at [-0.00014, 0.00155] (Table 4.15). Apparently,

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[26] Note that the no price policy program and the truncation policy actually overlap. The risk efficient portfolio, M_c^*, of the no price policy consists of both the 80 and 85 mm strategies while the truncation M_c^* consists of the 80 mm.

[27] Here, significance is used in a dominating sense. While the averaging of multiple M_c's is used to demonstrate potential change, it is not significant. There may a number of practical reasons for a lack of significance including the variability associated with differing random draws between simulations.

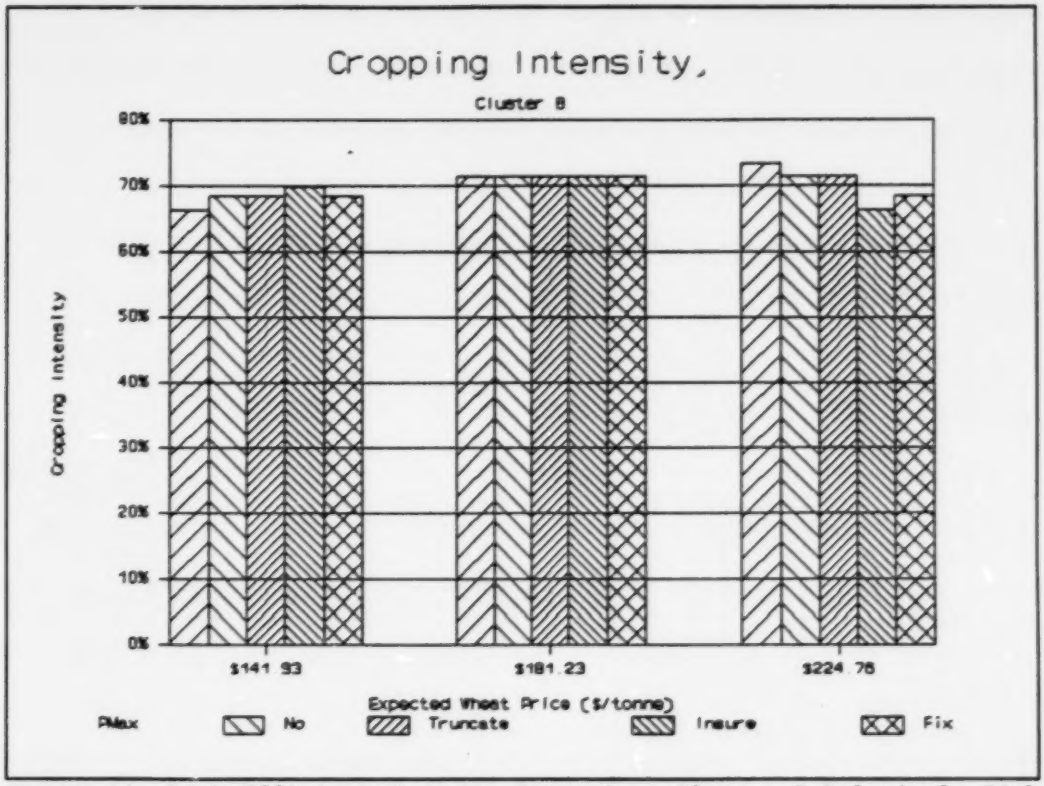

Figure 14: Risk Efficient Cropping Intensity, Cluster B-Relatively Risk Neutral

the lower income level is sufficiently low enough to give the lower interval of -0.00014 more weight; the r_l values take on greater importance as the absolute value of income rises. Hence, Cluster B at the lower income levels tends towards very moderate risk loving attitudes when compared to the risk neutral or profit maximizing criterion. However, this attitude is moderate enough that price policies have no significant effect on production; while there may be some production response associated with price insurance programs, this occurs because M_c^* consists of multiple M_c's and can not be claimed as significant because the M_c^* overlap.

Mid and High Prices. At the middle price level, Cluster B is risk

neutral and therefore maintains the same M_c, regardless of price policy. At the high price level, the upper r of 0.00155 takes on more importance and the Cluster B tends to act as a risk averter, contracting production by 4.2% to 7.2%

Cluster C

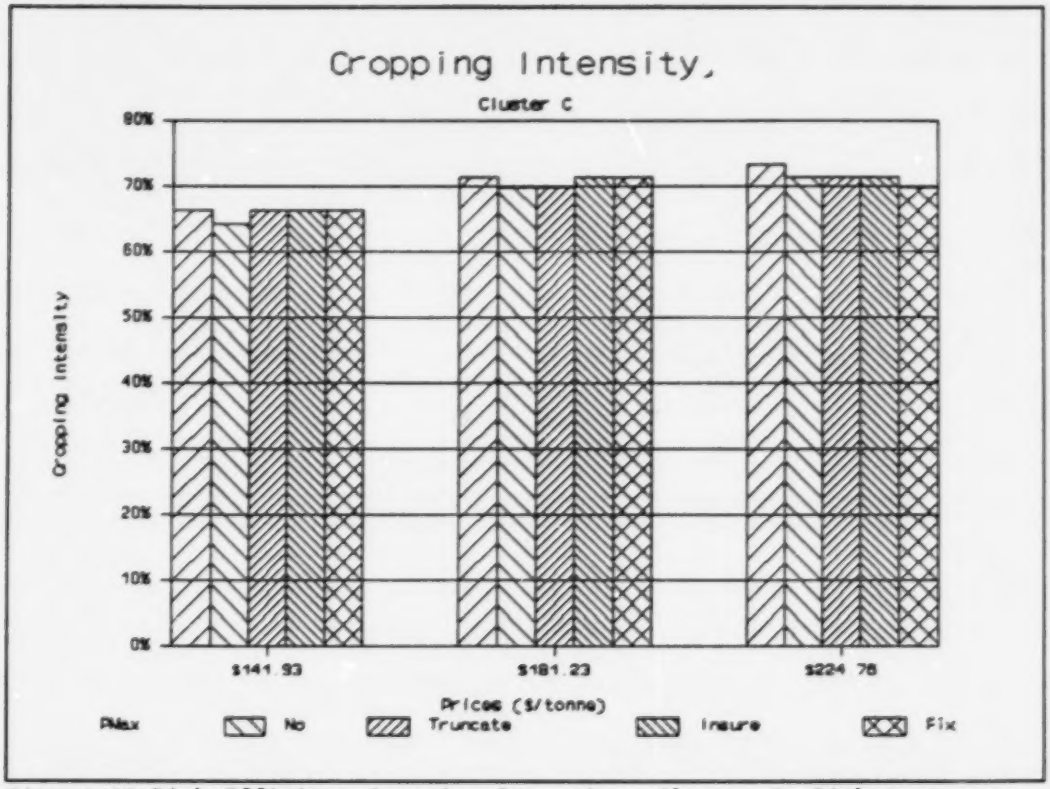

Figure 15:Risk Efficient Cropping Intensity, Cluster C--Risk Averters

Low Prices. Cluster C is the relative risk averting cluster. At lower prices, the risk efficient M_c^* of this cluster results in mean seeded acreage falling to 382 h from the profit maximizing acreage of 394 h or about a 3% reduction. Interestingly, the various stabilization policies enable Cluster C to expand by the same amount, regaining the same levels associated with profit maximization.

Mid Prices. At higher income levels, the r interval is [-00016, 0.00049], so that at higher price levels (and thus, income levels), Cluster B will tend to act in a more risk-neutral fashion with only moderate tendencies towards risk aversion. At the middle price scenario, the no price stabilization policy results in slightly lower risk efficient acreages than the profit maximizing acreage--acreage is cut by 2.2%. As in the lower price scenario, price insurance and fixed price policies result in regaining the same 2.2% so that production is at the same level as the profit maximizing level.

High Prices. At the highest price level, acreage averages about 2.5% below profit maximizing acreages under all price policies (Table 6.5). In general, the various price polices do not have a significant impact on production, although there may be a slight but insignificant tendency for the fixed price to cause a slight decrease in acreage over the no-price stabilization policy. This may be due to the "fuzziness" of the RIA/SDWF approach.[28]

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[28] The simulation model incorporates stochastic elements and thus, there can be a problem with the selection of differing random "events." This has been minimized through the standardizing of the initial seed value and generating all stochastic variables whether or not they are used. This guarantees that each simulation should be based on the same set of random variables. In addition, the set of 1000 observations of income are sorted and pooled into a set of 100 observations making up the cdf. The latter limit of 100 is imposed by the SDWF software. Accordingly, the impact of extremely unlikely (1 in 1000) events is partially absorbed in the pooling effect.

Table 6.3a: Risk Efficient M_c Strategies, by Cluster and Wheat Price

Cluster/ Price Level	Risk Preferences: Unrestricted Profit Max	Risk Efficient Criteria: Price Policy None	Truncate	Insure	Fixed
Cluster A					
141.93	90	80,85	80	75	70
181.23	80	75	75	75	75
224.76	75	75,80	70,75	65,70 75,80	75,80
Cluster B					
141.93	90	85	85	80,85	85
181.23	80	80	80	80	80
224.76	75	80	80	90	85
Cluster C					
141.93	90	95	90	90	90
181.23	80	80,85	80,85	80	80
224.76	75	80	80	80	80,85

Table 6.3b: Mean Risk Efficient M_c Strategies, by Price Level and Cluster

Cluster/ Price Level	Risk Preferences: Unrestricted Profit Max	Risk Efficient Criteria: Price Policy None	Truncate	Insure	Fixed
	(mm of May Moisture)				
Cluster A					
$141.93	90.0	82.5	80.0	75.0	70.0
$181.23	80.0	75.0	75.0	75.0	75.0
$224.76	75.0	77.5	72.5	72.5	77.5
Cluster B					
141.93	90.0	85.0	85.0	82.5	85.0
181.23	80.0	80.0	80.0	80.0	80.0
224.76	75.0	80.0	80.0	90.0	85.0
Cluster C					
141.93	90.0	95.0	90.0	90.0	90.0
181.23	80.0	82.5	82.5	80.0	80.0
224.76	75.0	80.0	80.0	80.0	82.5

Table 6.4: Mean Risk Efficient Cropping Intensity* by Cluster and Wheat Price

	Risk Preferences				
	Unrestricted Profit	Risk Efficient Choices Price Policy			
Price	Max	None	Truncate	Insure	Fixed
Cluster A					
$141.93	0.66	0.70	0.71	0.73	0.76
$181.23	0.71	0.73	0.73	0.73	0.73
$224.76	0.73	0.72	0.75	0.75	0.72
Cluster B					
$141.93	0.66	0.68	0.68	0.70	0.68
$181.23	0.71	0.71	0.71	0.71	0.71
$224.76	0.73	0.71	0.71	0.66	0.68
Cluster C					
$141.93	0.66	0.64	0.66	0.66	0.66
$181.23	0.71	0.70	0.70	0.71	0.71
$224.76	0.73	0.71	0.71	0.71	0.70

* Mean cropping intensity is defined as the mean seeded acres/total acres.

Table 6.5: Risk Efficient Acreage Decisions, by Cluster and Price Level, Brown Soils

	Risk Preferences				
	Unrestricted Profit	Risk Efficient Choices Price Policy			
Price	Max	None	Truncate	Insure	Fixed
Cluster A					
$141.93	629	663	678	695	724
$181.23	678	695	695	695	695
$224.76	695	686*	709*	709*	686*
Cluster B					
$141.93	546	563	563	576	563
$181.23	588	588	588	588	588
$224.76	604	588	588	546	563
Cluster C					
$141.93	394	382	394	394	394
$181.23	425	416*	416*	425	425
$224.76	436	425	425	425	416

* Not significantly different from the profit maximization strategy (ie. the efficient set includes the profit maximization strategy M_c).

Table 6.6: Impact of Stabilization Programs on Risk Efficient Acreage Decisions, Brown Soils

Expected Price	Price Policy None	Truncate	Insure	Fixed
	(Percent Change Over No-Price Stabilization Program)			
Cluster A				
$141.93	0.0%	2.2%*	4.9%	9.1%
$181.23	0.0%	0.0%	0.0%	0.0%
$224.76	0.0%	3.3%*	3.3%*	0.0%
Cluster B				
$141.93	0.0%	0.0%	2.2%*	0.0%
$181.23	0.0%	0.0%	0.0%	0.0%
$224.76	0.0%	0.0%	-7.2%	-4.2%
Cluster C				
$141.93	0.0%	3.1%	3.1%	3.1%
$181.23	0.0%	0.0%	2.2%*	2.2%*
$224.76	0.0%	0.0%	0.0%	-2.1%*

* Not significantly different from the no stabilization policy (ie. the efficient set includes the optimum no stabilization policy M_c).

Table 6.7: Impact of Stabilization Programs on Risk Efficient Production

Price	Price Policy None	Truncate	Insure	Fixed
	(Percent Change Over No Price Policy)			
Cluster A				
$141.93	0.0%	1.0%*	2.0%	3.6%
$181.23	0.0%	0.0%	0.0%	0.0%
$224.76	0.0%	1.3%*	1.3%*	0.0%
Cluster B				
$141.93	0.0%	0.0%	1.0%*	0.0%
$181.23	0.0%	0.0%	0.0%	0.0%
$224.76	0.0%	0.0%	-3.4%	-1.9%
Cluster C				
$141.93	0.0%	1.8%	1.8%	1.8%
$181.23	0.0%	0.0%	1.0%*	1.0%*
$224.76	0.0%	0.0%	0.0%	-1.0%*

* Not significantly different from the no stabilization policy (ie. the efficient set includes the optimum no stabilization policy M_c).

Supply Response Under Risk

Associated with each risk efficient cropping strategy is a distribution of efficient mean cropping intensities, acreages and yields. These are used to map acreage and yield response to price and price stabilization programs. In some cases, the efficient set consists of more than one M_c; in this case the corresponding acreage and production response are averaged. However, when the efficient set includes the same M_c as the previous price, then these elasticities are marked as being insignificantly different from zero. Also note that unrestricted profit maximization (PMAX) is the perfect neutrality case and is included under each cluster as a benchmark of comparison. In addition, recall that Cluster B is relatively risk neutral in that it includes both risk loving, neutral and aversion tendencies. Also recall that all price stabilization programs are mandatory. In the previous section, it was shown that risk lovers produce more and risk averters produce less; but the questions addressed in this section are the following.

1) How does risk attitude affect production responsiveness to price changes?

2) Given risk attitude, how does a mandatory price stabilization program affect production responsiveness to price changes?

3) If each cluster is weighted by its corresponding sample proportion, what is the aggregate response?

The interval price elasticity of acreage response by cluster and wheat price are presented in Table 6.8 and the interval price elasticity of production (total yield) response by cluster and wheat price are presented in Table 6.10. Note that production response is about one-half of acreage response due to diminishing average yields.

Risk Lovers. Risk lovers crop more intensively than perfect risk neutrality (PMAX) and have correspondingly less freedom to respond with still more intensity; thus, risk lovers respond with fewer acres to increased prices than (PMAX), even under low prices. Recall that mandatory fixed prices cause risk loving producers to search out more risk so that production is very intensive even at low prices. In addition, there may also be a "utility effect" similar to the "income effect" associated with consumer behavior. By raising utility through increased incomes, risk lovers are less likely to search for more utility through increased risk. Using the low price interval, the result is that mandatory price stabilization programs make risk lovers less price responsive or in the case of fixed prices, even cause them to act "perversely" by decreasing acreage with increased wheat prices.[29]

Risk Neutrality. This cluster also is less price responsive than the PMAX benchmark, primarily due to the broad latitude in risk attitudes attached to this group. At low prices, price stabilization programs have little effect on price responsiveness, as expected. At the higher price scenario, there is no response to prices except for price insurance and fixed price programs; the latter two programs induce a negative production response; production at the high price level is roughly at the same level as the low price. Again, the reason for the negatively sloped supply curve is apparently due to the relatively broad r values. From Table 4.8, the interval range is [-0.00026,0.00107] with the upper r value being higher than the corresponding risk lovers' value.

Risk Averting. At lower prices, risk averters are more responsive than

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[29] The reason may also be due the "fuzziness" associated with simulation and SDWF.

the perfectly risk neutral benchmark; the price elasticity of acreage is 0.35 v 0.31 associated with risk neutrality. Most price stabilization programs increase production intensity to roughly the same level as that of PMAX and price responsiveness is similar. At higher prices and no price stabilization, Cluster C producers become more risk neutral and response under no price stabilization is similar to PMAX. At higher prices, price stabilization programs tend to dampen price responsiveness due to higher levels of production intensity and broader risk attitude intervals, including a greater tendency towards risk loving.

Aggregate Response. In Table 6.9, each cluster is weighted by its corresponding sample proportion and summed to give the aggregate response. Using the low price as a base, acreage responsiveness to price is 0.15 or about 50% of the PMAX of 0.31. In the aggregate and at lower price intervals, price stabilization programs tend to make producers less responsive to price, primarily because they are operating at a higher production level; with price truncation, price insurance and fixed price ranked in order of diminishing acreage responsiveness. At high expected prices, there is no significant acreage response to price under price stabilization.

Table 6.8: Estimated Interval Price Elasticity of Acreage Response by Cluster and Wheat Price, Brown Soil Zone

	Risk Preferences				
	Unrestricted Profit	Risk Efficient Choices Price Policy			
Price	Max	None	Truncate	Insure	Fixed
Cluster A					
$141.93					
$181.23	0.31	0.19	0.11	0.00	-0.16
$224.76	0.12	-0.06*	0.09*	0.09*	-0.06*
Cluster B					
$141.93					
$181.23	0.31	0.18	0.18	0.09*	0.18
$224.76	0.12	0.00	0.00	-0.35	-0.20
Cluster C					
$141.93					
$181.23	0.31	0.35	0.22	0.31	0.31
$224.76	0.12	0.10*	0.10*	0.00	-0.10*

* Not significantly different from zero (ie. the efficient set includes the same acreage).

Table 6.9: Weighted Acreage Supply Response

	Risk Preferences				
	Unrestricted Profit	Risk Efficient Choices Price Policy			
Price	Max	None	Truncate	Insure	Fixed
$141.93					
$181.23	0.31	0.15	0.13	0.04	0.01
$224.76	0.12	-0.01*	0.02*	-0.13*	-0.10*
Mean	0.21	0.07*	0.07*	-0.05*	-0.04*

* Includes estimates which are not significantly different from zero (ie. the efficient set includes the same acreage).

Table 6.10: Estimated Interval Price Elasticity of Production Response by Cluster and Wheat Price, Brown Soil Zone

	Risk Preferences				
	Unrestricted	Risk Efficient Choices			
	Profit	Price Policy			
Price	Max	None	Truncate	Insure	Fixed
Cluster A					
$141.93					
$181.23	0.14	0.08	0.04	0.00	-0.07
$224.76	0.05	-0.02*	0.04*	0.04*	-0.02*
Cluster B					
$141.93					
$181.23	0.14	0.08	0.08	0.04*	0.08
$224.76	0.05	0.00	0.00	-0.16	-0.09
Cluster C					
$141.93					
$181.23	0.14	0.18	0.10	0.14	0.14
$224.76	0.05	0.04*	0.04*	0.00	-0.04*

* Not significantly different from zero (ie. the efficient set includes the same production).

An E-V Analysis of Response

In the previous section, each risk cluster is treated separately. In brief summary, relative risk lovers produce more and respond more positively to price stabilization policies than relative risk averters. While relative risk averters produce less than relatively risk neutral producers, they also respond more to price stabilization policies. This section shows how these results must follow from their differences in risk attitudes and the shape of the E-V frontier. In the following section the E-V efficiency frontier is based on choices faced by Cluster B under the middle or base price scenario for the base price and fixed price policies (Table 6.11). The resulting E-V

efficiency frontier is presented in figure 16.[30]

Risk Averters. In brief review, an efficiency frontier for risk averters is the locus of points where for a given variance, expected income is maximized and likewise, for a given expected income, variance is minimized. Thus, relevant risk efficient points must lie below and to the left of the point of maximum expected income. The optimum production is the point of tangency between the indifference surface and the E-V frontier. The indifference surface for a given level of utility must be positively sloped, indicating that more risk must be also accompanied by more expected income. Likewise a reduction in risk caused by elimination of price risk must also result in a slight to a higher indifference surface. This is shown in figure 16 by a shift from the stochastic price E-V frontier to the lower E-V frontier of fixed prices.

Risk Lovers. In sharp contrast to the risk averters, the relevant section of the E-V frontier to the risk lover is the section also lying to the left but lying above the profit maximizing point. The slope of the indifference curve is negatively sloped. Utility increases with upward and outward shifts. Thus, the stochastic price E-V curve represents a higher level of utility than the fixed price E-V curve.

Risk Neutral. Of course, the risk neutral point is the point of maximum income and any movement to the right represents increased utility.

Comparisons. Several important comparisons can be made. First, note the efficient risk averse section of both E-V curves is relatively flat as compared to the efficient risk loving sections. This means that a small change in risk must be accompanied by a much larger and inversely proportional

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[30] Note the axes have been reversed from chapter 2 for computational ease.

change in expected income. Thus, risk averters' efficient M_c^* will be less affected by small changes in attitude, than those of risk lovers.

A price reduction is represented by a shift to the left and downwards. Assuming constant expected returns - variance trade off, Φ, risk lovers will be more price responsive under no price stabilization programs because their efficient portion has far greater absolute slope than that of risk averters.

Price stabilization programs result ina downward shift and a compression. Maintaining a constant Φ, when price stabilization programs such as the fixed price policy, reduce the variance, they also reduce price responsiveness of both risk lovers and risk averse groups because the E-V surface becomes flatter. However, risk lovers remain relatively more price responsive than risk averters.

Table 6.11: Expected Value-Standard Deviation of Annualized Income Frontier, Cluster B, Base Price Scenario

M_c Strategy	Price Policy			
	None		Fixed	
	Mean	Standard Deviation	Mean	Standard Deviation
(mm)	(dollars/year)			
65	17,477	15,677	17,308	11,710
70	17,703	15,576	17,553	11,530
75	17,999	15,177	17,966	11,295
80	18,035	15,011	18,050	11,067
85	17,765	14,663	17,812	10,879
90	17,366	14,459	17,442	10,690
95	16,803	14,265	16,959	10,610
100	16,150	13,889	16,292	10,365
105	15,326	13,721	15,429	10,267

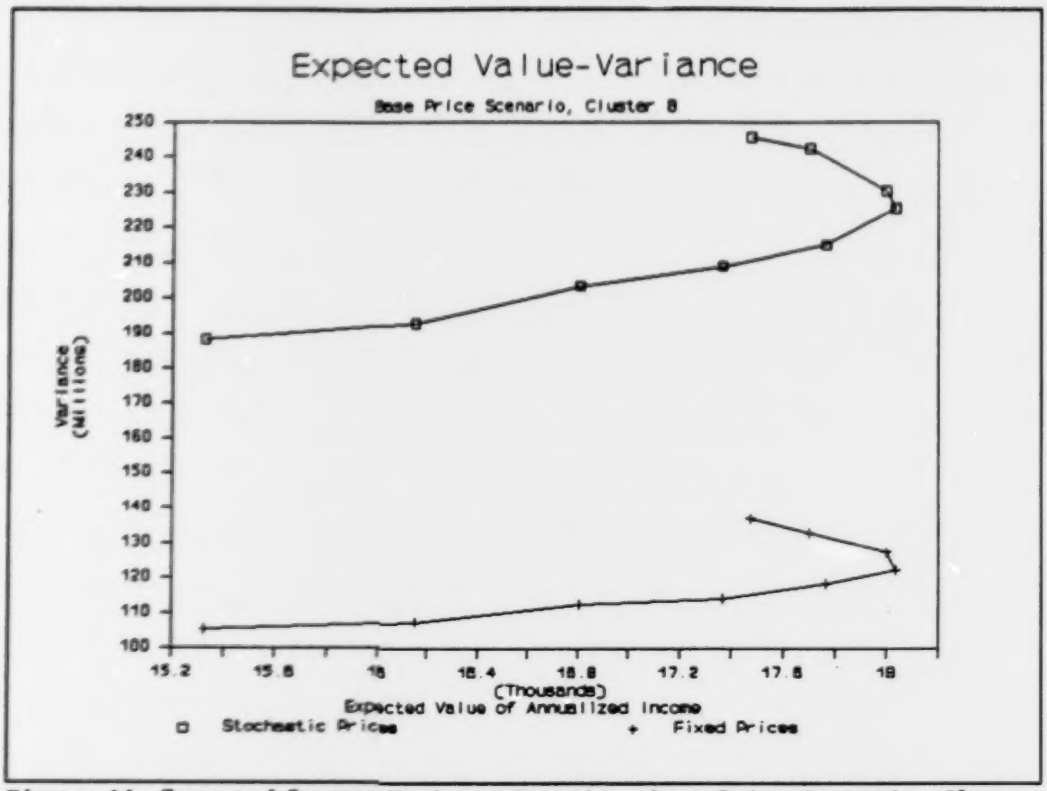

Figure 16: Expected Income-Variance Frontier, Base Price Scenario, Cluster B

Producer Price Stabilization Policy Preferences

In the previous section, each price policy is evaluated separately for dominant cropping strategies. In this section, the four price policy alternatives and the nine cropping strategies are simultaneously assessed for stochastic dominance; thus, each cluster has a total 36 alternative

strategies.[31] The results are shown in Table 6.12. Because the fixed price policy may not be a feasible price policy, a reduced set of alternatives is formed by omitting the fixed price alternatives and testing the remaining alternatives for dominance. These results are shown in Table 6.13.

As can be expected, the no price policy is uniquely dominant at the low and base price scenarios for Cluster A, the relatively risk loving group. Since the shape of the E-V frontier is similar between all three clusters, this can easily be verified from figure 16; a risk lover can reach a higher indifference curve by shifting from fixed price policies to no price or a free market price policy. However, the results of the high price scenario and Cluster A are somewhat surprising--all pricing policies and the no price policy are dominant. This is the result of the extremely broad or "fuzzy" upper income level risk coefficients of [-0.00040, 0.00010].

Cluster B is relatively risk neutral but not perfectly so. At the lowest price scenario, Cluster B would be expected to choose the no price policy--this is the stochastically dominant set. At higher price scenarios, the fixed price policy is dominant (Table 6.12), indicating that the [-0.00026, 0.00107] risk coefficient interval leads Cluster B to act in a mildly risk averse fashion. When fixed prices are omitted from the opportunity set, Cluster B would prefer price truncation policies over price insurance policies. This follows because risk aversion implies concavity of the utility function and thus, stabilization programs will be in general

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[31] While all 36 strategies are compared, only the individual risk efficient strategies need to be compared; less programming was required to compare all 36 then to compare the set of individual price policy risk efficient strategies.

preferred over insurance programs.[32]

Table 6.12: Risk Efficient Pricing Policy Strategies, All Pricing Policy Policies Considered

	Price Policy			
Price	None	Truncate	Insure	Fixed
Cluster A				
$141.93	X			
$181.23	X			
$224.76	X	X	X	X
Cluster B				
$141.93	X			
$181.23				X
$224.76				X
Cluster C				
$141.93		X	X	X
$181.23				X
$224.76				X

[32] Concavity of the utility function gives the result of diminishing marginal utility. Hence, any program which reduces low income extremes with a corresponding reduction in high income extremes will result in higher expected utility than one which reduces low income extremes with a corresponding constant payment reduction (risk premium) of the remaining distribution.

Table 6.13: Risk Efficient Pricing Policy Strategies, No Fixed Pricing Policy

Price	Price Policy None	Truncate	Insure
Cluster A			
$141.93	X		
$181.23	X		
$224.76	X	X	X
Cluster B			
$141.93	X		
$181.23		X	
$224.76		X	
Cluster C			
$141.93		X	X
$181.23		X	
$224.76		X	

Cluster C is the relatively risk averse cluster. Thus, it should choose the fixed price alternative. Curiously, this cluster would unambiguously choose the fixed price scenario only under the base and high price scenarios; under the low price scenario, the stochastically dominant set consists of all three price risk reduction alternatives. The reason for multiple efficient alternatives may lie in the nature of the dominance tests and its potential ambiguity. In order to explore this further, the annualized income cdf is summarized for the risk efficient strategies, 90 mm in Table 6.14. The income levels associated with the 1 percentile of the risk efficient strategies are -$22,681, -$22,398 and -$20,348 for the truncated, insurance and fixed price policies, respectively. At this probability level, the fixed price policy should dominate the truncated price which should dominate the insured price

policy.[33] This is not the case between the truncated and insurance policies. At the 1% level the insurance policy slightly dominates the truncated policy; between the 2% and 52% level, the truncation policy dominates the insurance policy as it should. The crossover points--both the location and the number of crossovers are of next interest. The first CDF dominance crossover between the fixed and truncated price polices occurs at the 47% level followed by crossovers at 50% and 57% levels. The first and only CDF crossover between the fixed and insured price polices occurs at the 54% level. However, the probability of a positive annualized income is higher with the insurance price policy--87% v 93%. Thus, because of multiple crossovers and/or the negative incomes, the SDRF process can not sufficiently discriminate among the various price policies to choose a unique price stabilization policy. This also demonstrates the potential drawbacks of RIA and SDRF.

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[33] The truncated policy should dominate the insurance policy at the lowest levels because of the insurance premium associated with the latter.

Table 6.14 : Summary of Simulated Annualized Income CDFs, 90 mm Low Price Scenario, Cluster C, Brown Soils, Saskatchewan

Percentile (%)	Price Policy		
	Protected	Floors	Free
1	(22,661)	(22,396)	(20,368)
2	(20,067)	(20,011)	(18,907)
3	(18,629)	(19,957)	(17,807)
4	(17,950)	(19,162)	(16,773)
5	(17,678)	(18,436)	(16,006)
6	(16,856)	(17,886)	(15,359)
7	(16,622)	(17,225)	(14,970)
8	(16,203)	(16,718)	(14,529)
9	(15,869)	(16,466)	(14,244)
10	(15,590)	(16,138)	(13,952)
11	(15,176)	(15,915)	(13,662)
12	(14,739)	(15,669)	(13,444)
13	(14,461)	(15,393)	(13,269)
14	(14,177)	(15,166)	(13,060)
15	(13,910)	(14,961)	(12,913)
16	(13,692)	(14,766)	(12,761)
17	(13,441)	(14,533)	(12,614)
18	(13,275)	(14,297)	(12,511)
19	(13,130)	(14,089)	(12,379)
20	(13,011)	(13,864)	(12,250)
21	(12,762)	(13,667)	(12,066)
22	(12,562)	(13,438)	(11,937)
23	(12,395)	(13,182)	(11,807)
24	(12,313)	(12,981)	(11,649)
25	(12,129)	(12,678)	(11,472)
26	(11,782)	(12,384)	(11,322)
27	(11,576)	(12,169)	(11,186)
28	(11,470)	(11,933)	(10,976)
29	(11,316)	(11,773)	(10,805)
30	(11,181)	(11,556)	(10,649)
31	(11,026)	(11,440)	(10,516)
32	(10,884)	(11,219)	(10,317)
33	(10,701)	(10,999)	(10,186)
34	(10,496)	(10,781)	(10,055)
35	(10,328)	(10,570)	(9,947)
36	(10,103)	(10,372)	(9,841)
37	(9,966)	(10,143)	(9,753)
38	(9,787)	(9,963)	(9,632)
39	(9,646)	(9,796)	(9,515)
40	(9,446)	(9,663)	(9,318)
41	(9,261)	(9,520)	(9,146)
42	(9,120)	(9,369)	(8,991)
43	(8,999)	(9,176)	(8,855)
44	(8,837)	(8,976)	(8,693)
45	(8,653)	(8,823)	(8,598)
46	(8,475)	(8,581)	(8,465)
47	(8,299)	(8,430)	(8,297)
48	(8,112)	(8,257)	(8,175)
49	(7,981)	(8,091)	(8,001)
50	(7,843)	(7,953)	(7,839)
51	(7,711)	(7,822)	(7,667)
52	(7,627)	(7,628)	(7,520)
53	(7,536)	(7,421)	(7,371)
54	(7,399)	(7,217)	(7,226)
55	(7,202)	(7,080)	(7,051)
56	(6,975)	(6,916)	(6,909)
57	(6,756)	(6,629)	(6,802)
58	(6,597)	(6,526)	(6,746)
59	(6,496)	(6,360)	(6,673)
60	(6,322)	(6,171)	(6,578)
61	(6,175)	(5,973)	(6,479)
62	(6,063)	(5,840)	(6,409)
63	(5,812)	(5,651)	(6,298)
64	(5,615)	(5,605)	(6,169)
65	(5,343)	(5,206)	(6,029)
66	(5,217)	(5,027)	(5,941)
67	(5,029)	(4,799)	(5,826)
68	(4,820)	(4,689)	(5,681)
69	(4,575)	(4,456)	(5,438)
70	(4,376)	(4,268)	(5,321)
71	(4,297)	(4,075)	(5,126)
72	(4,102)	(3,819)	(4,997)
73	(3,937)	(3,566)	(4,846)
74	(3,779)	(3,327)	(4,649)
75	(3,679)	(3,135)	(4,488)
76	(3,435)	(2,896)	(4,306)
77	(3,270)	(2,742)	(4,135)
78	(2,996)	(2,548)	(3,966)
79	(2,637)	(2,287)	(3,737)
80	(2,423)	(1,998)	(3,606)
81	(2,233)	(1,704)	(3,362)
82	(1,953)	(1,432)	(3,093)
83	(1,766)	(1,123)	(2,873)
84	(1,699)	(843)	(2,589)
85	(1,390)	(623)	(2,372)
86	(1,091)	(308)	(2,263)
87	(749)	128	(2,046)
88	(385)	355	(1,728)
89	(177)	817	(1,457)
90	192	1,184	(956)
91	627	1,608	(592)
92	1,262	2,343	(264)
93	1,606	3,019	93
94	2,188	3,366	531
95	2,792	4,636	1,258
96	3,643	5,392	1,966
97	4,762	6,306	2,385
98	5,952	7,306	3,731
99	8,359	8,762	6,636
100	11,345	12,246	7,692
Mean	(7,311)	(7,305)	(7,690)
StDev	6,274	6,903	5,218

Source: 90mm Strategy, Appendix Tables C-29, C-32 and C-35.

CHAPTER VII: SUMMARY AND CONCLUSIONS

This section reviews study objectives, summarizes research procedure, reviews major research findings and outlines study limitations. Major research findings are indented and single spaced.

Research Objectives

In brief summary, the primary objective of this study is to appraise typical Saskatchewan grain producer supply response to price induced risk. A secondary but related objective is to quantify the major sources of farm income risk--price and yield risk faced by typical wheat farmers on the brown soils of Saskatchewan. In general, risk does not aggregate well. Analysis of risk in the aggregate lacks the rigorous foundation underlying neoclassical economics. Moreover, when individuals are non neutral in risk attitudes, the traditional measures of producer welfare are meaningless and must be replaced by concepts such as the utility certainty equivalent price. In addition, aggregate yield variables tend to understate true yield variability. Moreover, many aggregate models lack the the micro-foundations of risk analysis which can be based on more general concepts which do rely on normality assumptions. The following are major implications of supply response under risk at the firm level.

1. In general, individual farm income distributions are likely to be non-normal. Even if both yield and prices are likely to be normally distributed, which is also unlikely, their product is not normal.

2. While variance is commonly regarded as a measure of risk, it is an imperfect measure and misleading measure when incomes are non-normally distributed. Moreover, the purpose of many government programs is to deliberately change the shape of the income distribution. This means that traditional mean-variance analysis

may be inappropriate.

In addition, the distribution effects associated with price stabilizing policies are important. Thus, a representative study approach is used to evaluate producer response to alternative generic price stabilization polices. Producer response to risk is evaluated at the whole farm level, not at the enterprise level; producers respond to variations in net cash income in planning seeded acres. Thus, posited supply response to stochastic prices becomes a function of the nature of the price distribution, risk attitudes, production costs and financial structure. In this model, supply response is based on the fallow/seed FLEXCROP decision rule. Accordingly, a bio-economic simulator is constructed incorporating stochastic May soil moisture and yield relationships and deterministic farm costs. The seeding decision for each of the four fields is based on whether the May soil moisture, M_t, is above or below M_c, the critical soil moisture threshold. This is the FLEXCROP decision rule: if $M_t \geq M_c$, then the field is seeded, if $M_t < M_c$, then the field is fallowed. By parametrically varying M_c from 65 to 105 mm by 5 mm increments, the frontier of income-risk choices is mapped. Accompanying each M_c, are cdf's of income (converted from ending net worth), crop acreage and total wheat production. For example, a M_c of 90mm results in a mean cropping intensity of 66.3%, a mean yield of 1,820 k/h and a standard deviation of 640 k/h.

Research Findings and Conclusions

Risk Preferences. If each producer cluster were perfectly risk neutral, then no further analysis would be needed; each producer would choose the expected profit maximizing strategy. Likewise, the actuarially sound stabilization programs would have no long-run production effect. However,

producers were found to possess differing and distinct risk attitudes--at least at lower income levels. Three clusters were identified: Cluster A-relatively risk loving (10%), Cluster B-relatively risk neutral (40%) and Cluster C-relatively risk adverse (50%).

> 3. While the Top Management sample can not be regarded as representing the general farm population, the risk attitude survey does question the almost universal assumption employed by economists that farmers are risk neutral or, alternatively, if they possess risk attitudes, they are uniformly risk averse.[34]
>
> 4. The constant risk aversion coefficient is not constant over income but declines. This implies that the absolute risk premium declines with wealth. This means that wealthier producers would be willing to pay less for a given reduction in the standard deviation of income.[35]
>
> 5. The relative risk aversion coefficient is not constant over income but declines. Farmers are far more likely to be risk neutral at higher prices than at lower prices. Likewise, this implies that the proportional risk premium these producers would be willing to pay also declines with more favorable economic environments.[36]
>
> 6. Non-uniform risk attitudes which vary with income have important policy implications: government programs which are based on risk-neutral behavior may seem to work well during times of high commodity prices but may not work nearly so well during times of low expected prices.

Stabilization Programs and Expected Prices Three price scenarios and four price policies are examined. The three price scenarios include 1) a middle price scenario with an expected wheat price of $181.23 which represents

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[34] The selectivity associated with the participation requirements of the Top Management Workshops themselves means that the participants are not representative of the population as a whole.

[35] The absolute risk premium, P, is defined as $0.5\ r\ \sigma^2$ where is r is absolute risk aversion coefficient.

[36] The relative risk premium P/Y is defined as $0.5\ R\ \sigma^2$ where R is the relative risk aversion coefficient.

a historical mean adjusted for inflation and technology; this price scenario is also very close to a COP equilibrium price; 2) a low expected wheat price of $141.93/t (historical mean - one standard deviation) and 3) a high expected price of $224.76 (historical mean + one standard deviation). In each scenario the price coefficient of variation is held constant at 31% of the mean, historical average. Four alternative price stabilization programs are chosen, representing the free market with no government restrictions (no-price stabilization policy), upper and lower bounded prices (price truncation), lower bounded prices (price insurance), and perfect price stabilization (fixed price). In measuring response, the no-price stabilization policy is chosen as the benchmark and the alternative price risk reduction policies are lower and upper price truncation, price insurance and fixed prices. Response to price induced risk is mapped by perturbing both prices and price stabilization policies/risk.

Acreage Response to Price Under Risk. The net worth cdf of each strategy and farm cluster are simulated for each M_c strategy, price level and price policy. A total of 3 clusters x 3 price levels x 4 price policies x 9 M_c strategies generates a total of 324 simulations. Given price level and stabilization price policy, each pair of the nine M_c strategies are examined for stochastic efficiency according to the representative cluster risk attitudes. In the case of multiple stochastic efficient M_c^* strategies, the various efficient acreage and production response is assigned the same weight and averaged. By parametrically varying wheat prices, production response can be mapped and the percentage difference over the benchmark profit maximization response determined. Using perfect risk neutrality or the profit maximizing model as the benchmark, the price elasticities of acreage response are 0.31

and 0.12, respectively, between low-mid and mid-high price intervals. The corresponding price elasticity of wheat production response is 0.14 and 0.05, respectively. As expected, the risk lovers, Cluster A produce at a somewhat higher and riskier level; acreages are approximately 5% higher than the profit maximization benchmark. Cluster B, the relatively risk neutral cluster, produces at levels slightly differing from perfect risk neutrality because their risk attitudes span a relatively wide interval; they tend to act as slightly risk loving, perfectly risk neutral and slightly risk adverse at low, medium and high price levels, respectively. As expected, the risk averters, Cluster C, choose more conservative M_c strategies; their risk efficient seeded acreages are approximately 3% less than the profit maximizing benchmark.

> 7. The conclusion is that risk lovers produce more and risk averters produce less than perfectly risk neutral producers under free market prices.

Acreage Response to Price Stabilization. When price stabilization polices are introduced under the low price scenario, Cluster A, risk lovers, is affected the most. The truncated, insured and fixed price polices cause acreage to expand by 2.2%, 4.9% 9.1%, respectively over the no price stabilization policy. As expected, the risk efficient set of Cluster B, relatively risk neutral, is little altered--except at high prices. Also as expected, stabilizing prices results in a positive acreage response from Cluster C, the risk averse cluster. However, acreage response is relatively small--3.1%. This is due to the relative flat surface of the E-V curve. In sharp contrast, the risk lovers operate on the section of the curve which has a much higher slope.

> 8. Regardless of risk attitude, so long as risk attitudes are not **perfectly** risk neutral, farmers react to any mandatory stabilizing program by producing more. Risk lovers increase output more than

risk averters because of the slope of the tradeoff between expected income-risk. At low prices, impact of price stabilization programs is to expand production of risk averters to approximately the same level as PMAX (perfect risk neutrality).

9. Price stabilization without a corresponding yield insurance component is not a very effective tool in reducing income variation. For example, given a simlar coefficient of variation between price and yield (30-35% v 31%), tThe coefficient of variation of their product (gross income) is approximately 45%. Thus, if either price or yield variability is eliminated, gross income variability still remains at approximately 30%.

10. Price stabilization programs only have impact on acreage response at low commodity prices. Wheat acreage supply response based on cropping intensity is very inelastic with respect to changes in risk; the maximum acreage response occurs at the lowest expected price scenario and is 3.1% to 9.1% over free market prices if all price variability were removed. However, more typical acreage response is 2 to 3%. The latter translates into optimal total farm production increases of 1 to 2%.

Risk Attitudes and Responsiveness to Price Changes. Using perfect risk neutrality or the profit maximizing model as the benchmark, the benchmark price elasticities of acreage response are 0.31 and 0.12, respectively, between low-mid and mid-high price intervals. The corresponding price elasticity of wheat production is 0.14 and 0.05, respectively. General findings with respect to risk attitudes and supply response and no price stabilization policies are the following.

11. Using the low prices and PMAX (perfect risk neutrality), the benchmark price elasticity is 0.31, the corresponding price elasticities of relative risk lovers and neutral producers are 0.19 and 0.18, respectively; thus they are somewhat less price responsive than PMAX. Risk averters are somewhat more price responsive (0.35) than PMAX at low prices.

12. All risk lovers are less responsive than PMAX to price changes at high prices because they are operating at a production level and have rapidly diminishing total production.

13. If each cluster is weighted by its corresponding sample proportion and summed to give the aggregate response then the acreage responsive to price is 0.15 or about 50% of the PMAX of 0.31. Production response is about one-half of acreage response due to diminishing average yields.

Price Stabilization and Responsiveness to Price Changes. General findings with respect to risk attitudes and supply response and price stabilization policies are the following.

> 14. With respect to relatively risk neutral and averting producers, most price stabilization programs had little impact on acreage response to price, at lower prices. Risk loving producers became less responsive to price with price truncation, price insurance and fixed price (ranked in order of diminishing acreage responsiveness) primarily because they are operating at a higher production level.
>
> 15. In the aggregate, price stabilization programs tend to make producers less responsive to price, primarily because they are operating at a higher production level; with price truncation, price insurance and fixed price ranked in order of diminishing acreage responsiveness. At high prices, there is no significant aggregate acreage response to price.

Stabilization Program Preferences. Finally, when preferences among programs are assessed, then relative risk lovers, Cluster A, prefer no price stabilization policy; risk neutral producers, Cluster B, prefer no program or a fixed price policy, depending upon the expected price level; risk averters, Cluster C, prefer a fixed price first and secondly, a lower and upper stabilization policy, depending upon the expected price level.

> 16. If given a choice, risk lovers prefer a no price stabilization policy while risk averters would tend to prefer a symmetrical lower and upper price truncation program over the price insurance program.

Limitations

This study focuses solely on adjustment of cropping intensity to expected prices, neither cross price substitution effects nor changes in land base are allowed. In addition, this analysis is normative in nature, unlike most supply response studies based on econometric models which are positive in nature.

Normative vs Positive. In general, it would be expected that a normative model would generate more elastic supply responses than a positive model. However, since land expansion opportunities and other crop possibilities are excluded, the estimated supply response elasticities should be less elastic than they would be otherwise. Thus, the inherent limitations associated with a positive model and the more limiting underlying assumptions as to a diminished set of production opportunities should be offsetting, with the net bias unknown.

Single Crop-Brown Soils. Allowing alternative competing crops complicates considerably supply response under risk because all the various price-price, price-yield and yield-yield correlations must be considered. Moreover each crop may have its own optimal spring soil moisture threshold, M_c. However, several important factors tend to mitigate the omission errors associated with the assumption of single crop production. Wheat is the vastly dominant crop in the brown soil zone primarily due to its greater overall profitability over feed barley, the primary alternative crop. In addition, barley yields and prices are very highly correlated with wheat yield and price. This means that any stabilization program which affects both wheat and barley in a similar fashion will leave the optimum crop portfolio largely unchanged. Alternative crops are more of a potential problem in the other soil zones of Saskatchewan.

Single Crop-Black Soils. Nevertheless, canola has been more profitable than wheat in the black soil zone over the past few years and farmers tend to plant as much as possible up to a limit of 1 year in 4. The latter is a constraint imposed by plant disease. Thus, there is likely to be little cross price effect between canola and wheat. However, many cropping intensities are

far higher on the black soil zones, leaving little room for increased wheat acreages. Hence, if wheat/canola price ratios remain constant, then wheat acreages are likely to be less responsive to price or price changes than the brown soil zone.

Single Crop-Dark Brown Soils. There is likely to be far more of a cross price effect between canola and wheat on the dark brown soils. This is because canola is generally seeded on fallow ground. Hence, changes in spring soil moisture, past cropping intensity and wheat-canola price relationships influence canola seeding decisions. This may be offset by more intensive rotations leaving less room for acreage response. Thus, wheat acreage response on the dark brown soils is likely to be more responsive to changes to wheat price and wheat price risk than the brown soils.

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APPENDIX A: Simulated Soil Moisture and Wheat Yield

Appendix Table A-1: Real-Time, Simulated Wheat Yields and Field Moisture, Brown Soils

	Precipitation			Est. Moisture		Yield	
Obs	Summer	Winter	Total	Fallow	Continuous	Fallow	Continuous
1	12.9	14.3	27.3	11.0	8.3	1813	1448
2	17.7	13.5	31.2	19.6	8.6	2459	1873
3	13.7	12.9	26.5	13.0	8.3	2064	1520
4	12.6	17.9	30.6	12.2	8.3	1923	1432
5	8.0	13.1	21.2	9.0	6.6	1078	633
6	16.3	16.6	32.9	14.0	7.4	2278	1613
7	8.3	29.2	37.5	25.0	15.5	2340	1955
8	4.5	8.4	13.0	11.2	6.6	1047	180
9	19.0	13.2	32.2	24.2	8.1	2264	1894
10	19.1	18.7	37.8	18.0	7.3	2468	1810
11	17.4	19.2	36.6	16.7	7.4	2431	1700
12	13.1	14.1	27.2	12.6	7.7	2002	1376
13	15.4	11.6	26.9	17.9	8.5	2420	1695
14	21.8	18.6	40.4	24.4	6.7	2136	1909
15	21.5	15.3	36.8	25.0	7.2	2094	1943
16	21.7	10.2	31.9	25.0	10.0	2086	2218
17	7.6	11.2	18.8	11.7	6.8	1457	618
18	10.4	15.1	25.5	11.1	7.0	1614	984
19	9.8	16.1	26.0	9.5	7.2	1341	964
20	13.0	16.4	29.4	10.6	7.7	1774	1368
21	8.6	15.9	24.5	9.4	7.2	1202	825
22	17.9	14.5	32.4	18.9	7.9	2463	1801
23	15.3	20.9	36.2	11.8	8.3	2054	1659
24	4.9	32.9	37.8	25.0	22.0	2270	2197
25	16.7	16.1	32.8	22.0	13.7	2419	2271
26	19.3	14.7	34.0	25.0	10.4	2190	2148
27	7.2	16.1	23.3	12.6	8.1	1534	816
28	17.8	22.3	40.1	15.9	7.8	2416	1774
29	11.2	20.1	31.2	11.4	8.8	1716	1363
30	19.4	19.3	38.7	19.0	7.5	2463	1845
31	14.1	13.0	27.1	13.0	7.9	2099	1507
32	14.3	17.3	31.7	13.3	8.0	2128	1538
33	14.6	26.3	41.0	14.1	10.4	2207	1868
34	23.2	16.2	39.4	25.0	7.9	2004	2105
35	15.3	14.2	29.5	14.5	8.1	2264	1632
36	22.8	8.8	31.6	25.0	11.6	2025	2352
37	15.8	17.4	33.3	15.6	9.4	2348	1835
38	10.3	13.9	24.2	11.8	7.9	1706	1125
39	17.9	9.8	27.7	25.0	9.8	2243	2017
40	15.1	14.5	29.6	15.0	8.9	2286	1714
41	15.7	13.0	28.7	18.8	8.8	2441	1745
42	18.3	15.0	33.3	20.6	8.4	2441	1887
43	19.3	15.4	34.7	23.0	8.1	2331	1911
44	15.1	15.4	30.5	15.1	8.1	2297	1610
Mean	14.9	16.1	33.0	16.9	8.8	2060	1606
StdDev	4.70	4.74	5.9	5.4	2.6	386	474
CV	0.32	0.29	19.2%	32.1%	30.2%	18.7%	29.5%

APPENDIX B: Risk Survey and Results

Risk Interval Results

Appendix Table B-1: Financial and Sociological Characteristics of Clusters

	Net Income	Debt/ Asset Ratio	Net Worth	Age	Educ	Farm Size	Farm Exper
				(years)		(acres)	(years)
Cluster A:							
Mean	$62,327	14.90%	$1,009,762	36.1	5.6	2,090	15.4
StDev	$33,013	12.43%	$69,546	6.36	1.95	939	6.02
Min	$15,567	0.00%	$914,131	25	2	955	6
Max	$111,266	43.00%	$1,114,552	46	8	3,760	25
Cluster B:							
Mean	$33,875	22.72%	$649,192	41.6	5.72	1,814	21.3
StDev	$44,119	11.96%	$94,853	8.71	4.36	798	9.63
Min	($78,426)	3.00%	$426,830	30	0	750	9
Max	$144,473	54.00%	$834,814	63	23	3,980	43
Cluster C:							
Mean	$4,080	37.90%	$234,938	36.2	5.95	1,311	13.2
StDev	$20,454	20.65%	$94,604	6.27	1.96	599	5.29
Min	($62,796)	5.00%	$53,563	24	1	311	4
Max	$38,438	83.00%	$390,124	57	11	2,860	29

Appendix Table B-2: Mean, Lower and Upper r Ranges--Cluster A

	Mean Risk Aversion Coefficient Income Level			Lower Risk Aversion Coefficient Income Level			Upper Risk Aversion Coefficient Income Level		
	1	2	3	1	2	3	1	2	3
1	0.0002	0.0000	-0.0006	0.0000	-0.0001	-0.0010	0.0003	0.0001	-0.0001
2	-0.0006	0.0007	0.0000	-0.0010	0.0003	-0.0001	-0.0001	0.0010	0.0001
3	-0.0003	0.0007	-0.0003	-0.0005	0.0003	-0.0005	0.0000	0.0010	0.0000
4	-0.0003	0.0055	-0.0003	-0.0005	0.0010	-0.0005	0.0000	0.0100	0.0000
5	0.0002	0.0007	0.0000	0.0000	0.0003	-0.0001	0.0003	0.0010	0.0001
6	-0.0003	0.0007	0.0002	-0.0005	0.0003	0.0000	0.0000	0.0010	0.0003
7	-0.0003	0.0002	0.0000	-0.0005	0.0000	-0.0001	0.0000	0.0003	0.0001
8	0.0028	0.0004	0.0000	0.0006	0.0001	-0.0001	0.0050	0.0006	0.0001
9	-0.0003	0.0002	0.0000	-0.0005	0.0000	-0.0001	0.0000	0.0003	0.0001
10	-0.0006	0.0000	-0.0006	-0.0010	-0.0001	-0.0010	-0.0001	0.0001	-0.0001
Mean	0.0001	0.0009	-0.0001	-0.0004	0.0002	-0.0004	0.0005	0.0015	0.0001
StDev	0.0009	0.0016	0.0002	0.0005	0.0003	0.0004	0.0015	0.0028	0.0001
Min	-0.00055	0	-0.00055	-0.001	-0.0001	-0.001	-0.0001	0.0001	-0.0001
Max	0.0028	0.0055	0.00015	0.0006	0.001	0	0.005	0.01	0.0003

Appendix Table B-3: Mean, Lower and Upper r Ranges--Cluster B

	Mean Risk Aversion Coefficient Income Level			Lower Risk Aversion Coefficient Income Level			Upper Risk Aversion Coefficient Income Level		
	1	2	3	1	2	3	1	2	3
11	0.0004	-0.0003	0.0000	0.0001	-0.0005	-0.0001	0.0006	0.0000	0.0001
12	0.0055	0.0007	-0.0003	0.0010	0.0003	-0.0005	0.0100	0.0010	0.0000
13	-0.0003	0.0002	0.0002	-0.0005	0.0000	0.0000	0.0000	0.0003	0.0003
14	-0.0003	0.0007	-0.0003	-0.0005	0.0003	-0.0005	0.0000	0.0010	0.0000
15	-0.0003	0.0002	0.0000	-0.0005	0.0000	-0.0001	0.0000	0.0003	0.0001
16	-0.0006	0.0004	-0.0006	-0.0010	0.0001	-0.0010	-0.0001	0.0006	-0.0001
17	0.0000	0.0002	-0.0006	-0.0001	0.0000	-0.0010	0.0001	0.0003	-0.0001
18	0.0004	0.0007	-0.0003	0.0001	0.0003	-0.0005	0.0006	0.0010	0.0000
19	-0.0003	0.0007	0.0000	-0.0005	0.0003	-0.0001	0.0000	0.0010	0.0001
20	0.0000	-0.0006	0.0000	-0.0001	-0.0010	-0.0001	0.0001	-0.0001	0.0001
21	-0.0003	0.0002	0.0000	-0.0005	0.0000	-0.0001	0.0000	0.0003	0.0001
22	0.0002	0.0002	0.0000	0.0000	0.0000	-0.0001	0.0003	0.0003	0.0001
23	-0.0006	0.0004	0.0000	-0.0010	0.0001	-0.0001	-0.0001	0.0006	0.0001
24	-0.0006	-0.0003	0.0000	-0.0010	-0.0005	-0.0001	-0.0001	0.0000	0.0001
25	0.0028	0.0007	0.0002	0.0006	0.0003	0.0000	0.0050	0.0010	0.0003
26	0.0055	0.0007	-0.0006	0.0010	0.0003	-0.0010	0.0100	0.0010	-0.0001
27	-0.0006	0.0007	-0.0003	-0.0010	0.0003	-0.0005	-0.0001	0.0010	0.0000
28	-0.0003	0.0007	0.0055	-0.0005	0.0003	0.0010	0.0000	0.0010	0.0100
29	0.0007	0.0002	0.0055	0.0003	0.0000	0.0010	0.0010	0.0003	0.0100
30	0.0028	0.0055	0.0055	0.0006	0.0010	0.0010	0.0050	0.0100	0.0100
31	0.0055	0.0004	-0.0006	0.0010	0.0001	-0.0010	0.0100	0.0006	-0.0001
32	0.0007	0.0002	-0.0003	0.0003	0.0000	-0.0005	0.0010	0.0003	0.0000
33	0.0002	0.0000	0.0000	0.0000	-0.0001	-0.0001	0.0003	0.0001	0.0001
34	-0.0006	-0.0006	-0.0006	-0.0010	-0.0010	-0.0010	-0.0001	-0.0001	-0.0001
35	0.0002	-0.0003	0.0000	0.0000	-0.0005	-0.0001	0.0003	0.0000	0.0001
36	0.0002	0.0002	0.0000	0.0000	0.0000	-0.0001	0.0003	0.0003	0.0001
37	0.0004	-0.0003	-0.0003	0.0001	-0.0005	-0.0005	0.0006	0.0000	0.0000
38	-0.0006	-0.0006	-0.0006	-0.0010	-0.0010	-0.0010	-0.0001	-0.0001	-0.0001
39	0.0002	-0.0003	-0.0003	0.0000	-0.0005	-0.0005	0.0003	0.0000	0.0000
Mean	0.00070	0.00035	0.00041	-0.00014	-0.00007	-0.00026	0.00155	0.00076	0.00107
StDev	0.00182	0.00105	0.00174	0.00061	0.00045	0.00055	0.00313	0.00179	0.00303

Appendix Table B-4: Mean, Lower and Upper r Ranges--Cluster C

	Mean Risk Aversion Coefficient Income Level			Lower Risk Aversion Coefficient Income Level			Upper Risk Aversion Coefficient Income Level		
	1	2	3	1	2	3	1	2	3
40	0.0004	-0.0003	0.0000	0.0001	-0.0005	-0.0001	0.0006	0.0000	0.0001
41	0.0004	-0.0003	0.0000	0.0001	-0.0005	-0.0001	0.0006	0.0000	0.0001
42	0.0004	0.0002	0.0000	0.0001	0.0000	-0.0001	0.0006	0.0003	0.0001
43	0.0028	0.0007	0.0028	0.0006	0.0003	0.0006	0.0050	0.0010	0.0050
44	-0.0003	-0.0003	-0.0003	-0.0005	-0.0005	-0.0005	0.0000	0.0000	0.0000
45	-0.0003	0.0000	0.0000	-0.0005	-0.0001	-0.0001	0.0000	0.0001	0.0001
46	0.0055	0.0028	0.0002	0.0010	0.0006	0.0000	0.0100	0.0050	0.0003
47	0.0028	0.0007	-0.0006	0.0006	0.0003	-0.0010	0.0050	0.0010	-0.0001
48	0.0055	0.0007	-0.0003	0.0010	0.0003	-0.0005	0.0100	0.0010	0.0000
49	0.0055	0.0007	-0.0003	0.0010	0.0003	-0.0005	0.0100	0.0010	0.0000
50	-0.0003	0.0007	0.0002	-0.0005	0.0003	0.0000	0.0000	0.0010	0.0003
51	0.0028	0.0002	0.0002	0.0006	0.0000	0.0000	0.0050	0.0003	0.0003
52	0.0028	0.0002	0.0000	0.0006	0.0000	-0.0001	0.0050	0.0003	0.0001
53	0.0004	-0.0006	0.0000	0.0001	-0.0010	-0.0001	0.0006	-0.0001	0.0001
54	-0.0003	0.0002	0.0000	-0.0005	0.0000	-0.0001	0.0000	0.0003	0.0001
55	-0.0003	0.0007	-0.0003	-0.0005	0.0003	-0.0005	0.0000	0.0010	0.0000
56	0.0004	0.0004	0.0002	0.0001	0.0001	0.0000	0.0006	0.0006	0.0003
57	0.0002	0.0007	0.0000	0.0000	0.0003	-0.0001	0.0003	0.0010	0.0001
58	0.0002	-0.0003	0.0000	0.0000	-0.0005	-0.0001	0.0003	0.0000	0.0001
59	0.0028	0.0007	0.0000	0.0006	0.0003	-0.0001	0.0050	0.0010	0.0001
60	-0.0003	-0.0006	0.0002	-0.0005	-0.0010	0.0000	0.0000	-0.0001	0.0003
61	0.0028	0.0007	-0.0003	0.0006	0.0003	-0.0005	0.0050	0.0010	0.0000
62	-0.0003	0.0007	0.0000	-0.0005	0.0003	-0.0001	0.0000	0.0010	0.0001
63	-0.0003	-0.0003	0.0000	-0.0005	-0.0005	-0.0001	0.0000	0.0000	0.0001
64	-0.0003	-0.0003	0.0000	-0.0005	-0.0005	-0.0001	0.0000	0.0000	0.0001
65	0.0004	0.0000	0.0002	0.0001	-0.0001	0.0000	0.0006	0.0001	0.0003
66	-0.0006	-0.0006	-0.0006	-0.0010	-0.0010	-0.0010	-0.0001	-0.0001	-0.0001
67	-0.0006	0.0002	0.0000	-0.0010	0.0000	-0.0001	-0.0001	0.0003	0.0001
68	0.0004	0.0007	0.0002	0.0001	0.0003	0.0000	0.0006	0.0010	0.0003
69	0.0002	-0.0003	0.0002	0.0000	-0.0005	0.0000	0.0003	0.0000	0.0003
70	-0.0006	-0.0006	0.0055	-0.0010	-0.0010	0.0010	-0.0001	-0.0001	0.0100
71	0.0028	0.0000	0.0000	0.0006	-0.0001	-0.0001	0.0050	0.0001	0.0001
72	-0.0003	0.0007	-0.0003	-0.0005	0.0003	-0.0005	0.0000	0.0010	0.0000
73	0.0028	0.0007	0.0002	0.0006	0.0003	0.0000	0.0050	0.0010	0.0003
74	-0.0006	0.0004	-0.0006	-0.0010	0.0001	-0.0010	-0.0001	0.0006	-0.0001
75	0.0004	0.0002	0.0000	0.0001	0.0000	-0.0001	0.0006	0.0003	0.0001
76	0.0002	0.0002	0.0000	0.0000	0.0000	-0.0001	0.0003	0.0003	0.0001
77	0.0007	0.0000	0.0000	0.0003	-0.0001	-0.0001	0.0010	0.0001	0.0001
78	0.0002	0.0000	0.0000	0.0000	-0.0001	-0.0001	0.0003	0.0001	0.0001
79	-0.0003	-0.0003	0.0000	-0.0005	-0.0005	-0.0001	0.0000	0.0000	0.0001
Mean	0.000953	0.00022	0.000162	-0.00001	-0.00009	-0.00016	0.001922	0.000535	0.000485
StDev	0.001735	0.000581	0.000981	0.000565	0.000425	0.000354	0.002985	0.000836	0.001707

Appendix Table B-5: Mean, Lower and Upper θ Ranges--Cluster A

	Mean Risk Aversion Coefficient Income Level			Lower Risk Aversion Coefficient Income Level			Upper Risk Aversion Coefficient Income Level		
	1	2	3	1	2	3	1	2	3
2	-5.5	13.0	0.0	-10.0	6.0	-4.0	-1.0	20.0	4.0
3	-2.5	13.0	-10.0	-5.0	6.0	-20.0	0.0	20.0	0.0
4	-2.5	110.0	-10.0	-5.0	20.0	-20.0	0.0	200.0	0.0
5	1.5	13.0	0.0	0.0	6.0	-4.0	3.0	20.0	4.0
6	-2.5	13.0	6.0	-5.0	6.0	0.0	0.0	20.0	12.0
7	-2.5	3.0	0.0	-5.0	0.0	-4.0	0.0	6.0	4.0
8	28.0	7.0	0.0	6.0	2.0	-4.0	50.0	12.0	4.0
9	-2.5	3.0	0.0	-5.0	0.0	-4.0	0.0	6.0	4.0
10	-5.5	0.0	-22.0	-10.0	-2.0	-40.0	-1.0	2.0	-4.0
MEAN	0.8	17.5	-5.8	-3.9	4.2	-14.0	5.4	30.8	2.4
STD	9.4	31.3	9.3	4.6	6.2	14.6	14.9	56.9	4.5
MIN-V	-5.5	0.0	-22.0	-10.0	-2.0	-40.0	-1.0	2.0	-4.0
MAX-V	28.0	110.0	6.0	6.0	20.0	0.0	50.0	200.0	12.0

Appendix Table B-6: Mean,

Appendix Table B-6: Mean, Lower and Upper θ Ranges--Cluster B

	Mean Risk Aversion Coefficient Income Level			Lower Risk Aversion Coefficient Income Level			Upper Risk Aversion Coefficient Income Level		
	1	2	3	1	2	3	1	2	3
11	3.5	-5.0	0.0	1.0	-10.0	-4.0	6.0	0.0	4.0
12	55.0	13.0	-10.0	10.0	6.0	-20.0	100.0	20.0	0.0
13	-2.5	3.0	6.0	-5.0	0.0	0.0	0.0	6.0	12.0
14	-2.5	13.0	-10.0	-5.0	6.0	-20.0	0.0	20.0	0.0
15	-2.5	3.0	0.0	-5.0	0.0	-4.0	0.0	6.0	4.0
16	-5.5	7.0	-22.0	-10.0	2.0	-40.0	-1.0	12.0	-4.0
17	0.0	3.0	-22.0	-1.0	0.0	-40.0	1.0	6.0	-4.0
18	3.5	13.0	-10.0	1.0	6.0	-20.0	6.0	20.0	0.0
19	-2.5	13.0	0.0	-5.0	6.0	-4.0	0.0	20.0	4.0
20	0.0	-11.0	0.0	-1.0	-20.0	-4.0	1.0	-2.0	4.0
21	-2.5	3.0	0.0	-5.0	0.0	-4.0	0.0	6.0	4.0
22	1.5	3.0	0.0	0.0	0.0	-4.0	3.0	6.0	4.0
23	-5.5	7.0	0.0	-10.0	2.0	-4.0	-1.0	12.0	4.0
24	-5.5	-5.0	0.0	-10.0	-10.0	-4.0	-1.0	0.0	4.0
25	28.0	13.0	6.0	6.0	6.0	0.0	50.0	20.0	12.0
26	55.0	13.0	-22.0	10.0	6.0	-40.0	100.0	20.0	-4.0
27	-5.5	13.0	-10.0	-10.0	6.0	-20.0	-1.0	20.0	0.0
28	-2.5	13.0	220.0	-5.0	6.0	40.0	0.0	20.0	400.0
29	6.5	3.0	220.0	3.0	0.0	40.0	10.0	6.0	400.0
30	28.0	110.0	220.0	6.0	20.0	40.0	50.0	200.0	400.0
31	55.0	7.0	-22.0	10.0	2.0	-40.0	100.0	12.0	-4.0
32	6.5	3.0	-10.0	3.0	0.0	-20.0	10.0	6.0	0.0
33	1.5	0.0	0.0	0.0	-2.0	-4.0	3.0	2.0	4.0
34	-5.5	-11.0	-22.0	-10.0	-20.0	-40.0	-1.0	-2.0	-4.0
35	1.5	-5.0	0.0	0.0	-10.0	-4.0	3.0	0.0	4.0
36	1.5	3.0	0.0	0.0	0.0	-4.0	3.0	6.0	4.0
37	3.5	-5.0	-10.0	1.0	-10.0	-20.0	6.0	0.0	0.0
38	-5.5	-11.0	-22.0	-10.0	-20.0	-40.0	-1.0	-2.0	-4.0
39	1.5	-5.0	-10.0	0.0	-10.0	-20.0	3.0	0.0	0.0
MEAN	7.0	6.9	16.2	-1.4	-1.3	-10.5	15.5	15.2	42.9
STD	18.2	21.0	69.8	6.1	9.0	22.1	31.3	35.8	121.4
MIN-V	-5.5	-11.0	-22.0	-10.0	-20.0	-40.0	-1.0	-2.0	-4.0

Appendix Table B-7: Mean, Lower and Upper θ Ranges--Cluster C

	Mean Risk Aversion Coefficient Income Level			Lower Risk Aversion Coefficient Income Level			Upper Risk Aversion Coefficient Income Level		
	1	2	3	1	2	3	1	2	3
40	3.5	-5.0	0.0	1.0	-10.0	-4.0	6.0	0.0	4.0
41	3.5	-5.0	0.0	1.0	-10.0	-4.0	6.0	0.0	4.0
42	3.5	3.0	0.0	1.0	0.0	-4.0	6.0	6.0	4.0
43	28.0	13.0	112.0	6.0	6.0	24.0	50.0	20.0	200.0
44	-2.5	-5.0	-10.0	-5.0	-10.0	-20.0	0.0	0.0	0.0
45	-2.5	0.0	0.0	-5.0	-2.0	-4.0	0.0	2.0	4.0
46	55.0	56.0	6.0	10.0	12.0	0.0	100.0	100.0	12.0
47	28.0	13.0	-22.0	6.0	6.0	-40.0	50.0	20.0	-4.0
48	55.0	13.0	-10.0	10.0	6.0	-20.0	100.0	20.0	0.0
49	55.0	13.0	-10.0	10.0	6.0	-20.0	100.0	20.0	0.0
50	-2.5	13.0	6.0	-5.0	6.0	0.0	0.0	20.0	12.0
51	28.0	3.0	6.0	6.0	0.0	0.0	50.0	6.0	12.0
52	28.0	3.0	0.0	6.0	0.0	-4.0	50.0	6.0	4.0
53	3.5	-11.0	0.0	1.0	-20.0	-4.0	6.0	-2.0	4.0
54	-2.5	3.0	0.0	-5.0	0.0	-4.0	0.0	6.0	4.0
55	-2.5	13.0	-10.0	-5.0	6.0	-20.0	0.0	20.0	0.0
56	3.5	7.0	6.0	1.0	2.0	0.0	6.0	12.0	12.0
57	1.5	13.0	0.0	0.0	6.0	-4.0	3.0	20.0	4.0
58	1.5	-5.0	0.0	0.0	-10.0	-4.0	3.0	0.0	4.0
59	28.0	13.0	0.0	6.0	6.0	-4.0	50.0	20.0	4.0
60	-2.5	-11.0	6.0	-5.0	-20.0	0.0	0.0	-2.0	12.0
61	28.0	13.0	-10.0	6.0	6.0	-20.0	50.0	20.0	0.0
62	-2.5	13.0	0.0	-5.0	6.0	-4.0	0.0	20.0	4.0
63	-2.5	-5.0	0.0	-5.0	-10.0	-4.0	0.0	0.0	4.0
64	-2.5	-5.0	0.0	-5.0	-10.0	-4.0	0.0	0.0	4.0
65	3.5	0.0	6.0	1.0	-2.0	0.0	6.0	2.0	12.0
66	-5.5	-11.0	-22.0	-10.0	-20.0	-40.0	-1.0	-2.0	-4.0
67	-5.5	3.0	0.0	-10.0	0.0	-4.0	-1.0	6.0	4.0
68	3.5	13.0	6.0	1.0	6.0	0.0	6.0	20.0	12.0
69	1.5	-5.0	6.0	0.0	-10.0	0.0	3.0	0.0	12.0
70	-5.5	-11.0	220.0	-10.0	-20.0	40.0	-1.0	-2.0	400.0
71	28.0	0.0	0.0	6.0	-2.0	-4.0	50.0	2.0	4.0
72	-2.5	13.0	-10.0	-5.0	6.0	-20.0	0.0	20.0	0.0
73	28.0	13.0	6.0	6.0	6.0	0.0	50.0	20.0	12.0
74	-5.5	7.0	-22.0	-10.0	2.0	-40.0	-1.0	12.0	-4.0
75	3.5	3.0	0.0	1.0	0.0	-4.0	6.0	6.0	4.0
76	1.5	3.0	0.0	0.0	0.0	-4.0	3.0	6.0	4.0
77	6.5	0.0	0.0	3.0	-2.0	-4.0	10.0	2.0	4.0
78	1.5	0.0	0.0	0.0	-2.0	-4.0	3.0	2.0	4.0
79	-2.5	-5.0	0.0	-5.0	-10.0	-4.0	0.0	0.0	4.0
MEAN	9.5	4.4	6.5	-0.2	-1.9	-6.4	19.2	10.7	19.4
STD	17.4	11.6	39.3	5.7	8.5	14.2	29.9	16.7	68.3
MIN-v	-5.5	-11.0	-22.0	-10.0	-20.0	-40.0	-1.0	-2.0	-4.0
MAX-V	55.0	56.0	220.0	10.0	12.0	40.0	100.0	100.0	400.0

Appendix Table B-8: Profile of Sample Farmers According to Net Worth, 1987

Net Wealth	Number of Farmers	Relative Frequency	Cumulative Frequency
$0 - $99,999	5	6.3	6.3
$100,000 - $499,999	37	46.8	53.1
$500,000 - $999,999	32	40.6	93.7
Above $1,000,000	5	6.3	100.0
Total	79	100.0	

APPENDIX C: Simulated Income Distributions

Appendix Table C-1: Simulated Annualized Income CDFs, Cluster A, No Price Intervention, Low Price Scenario, Brown Soils, Saskatchewan

Percentile No	As = (ac) 65	70	75	80	85	90	95	100	105
1	(42,051)	(40,180)	(39,581)	(38,791)	(38,361)	(36,599)	(37,866)	(36,975)	(37,267)
2	(37,538)	(36,779)	(35,532)	(34,366)	(34,316)	(33,876)	(33,666)	(32,742)	(32,260)
3	(34,136)	(33,261)	(33,225)	(32,662)	(32,162)	(31,739)	(31,438)	(30,360)	(30,321)
4	(34,760)	(33,520)	(32,111)	(31,665)	(30,327)	(29,935)	(29,670)	(29,212)	(29,519)
5	(33,159)	(32,149)	(31,210)	(30,227)	(29,027)	(28,911)	(28,730)	(28,664)	(28,698)
6	(31,779)	(31,162)	(30,132)	(28,657)	(28,066)	(28,043)	(28,066)	(27,865)	(27,675)
7	(31,091)	(30,172)	(28,788)	(27,913)	(27,466)	(27,289)	(26,862)	(26,643)	(27,169)
8	(30,102)	(29,085)	(28,116)	(27,209)	(26,760)	(26,420)	(26,158)	(25,966)	(26,452)
9	(29,297)	(28,215)	(27,567)	(26,589)	(25,993)	(25,261)	(25,367)	(25,113)	(25,421)
10	(28,431)	(27,786)	(26,868)	(25,985)	(25,028)	(24,873)	(24,932)	(24,635)	(25,012)
11	(27,858)	(27,222)	(26,286)	(25,313)	(24,529)	(24,295)	(24,234)	(23,947)	(24,491)
12	(27,288)	(26,697)	(25,498)	(24,885)	(23,788)	(23,516)	(23,572)	(23,519)	(23,856)
13	(26,576)	(26,119)	(24,782)	(24,374)	(23,436)	(23,123)	(23,193)	(23,027)	(23,228)
14	(26,038)	(25,266)	(24,681)	(23,767)	(23,136)	(22,665)	(22,625)	(22,652)	(22,835)
15	(25,446)	(24,456)	(23,625)	(23,405)	(22,705)	(22,180)	(22,175)	(22,308)	(22,630)
16	(25,032)	(24,032)	(23,261)	(22,129)	(22,250)	(21,616)	(21,701)	(21,958)	(22,092)
17	(24,427)	(23,617)	(22,778)	(22,560)	(21,763)	(21,280)	(21,406)	(21,197)	(21,797)
18	(23,760)	(23,440)	(22,526)	(21,962)	(21,306)	(20,916)	(20,962)	(20,762)	(21,357)
19	(23,366)	(23,099)	(22,251)	(21,721)	(20,926)	(20,619)	(20,674)	(20,305)	(20,981)
20	(23,067)	(22,826)	(21,677)	(21,380)	(20,567)	(20,266)	(20,232)	(19,993)	(20,656)
21	(22,672)	(22,479)	(21,501)	(20,983)	(20,252)	(19,890)	(19,843)	(19,688)	(20,322)
22	(22,387)	(21,965)	(20,953)	(20,515)	(19,815)	(19,480)	(19,526)	(19,619)	(19,981)
23	(22,014)	(21,377)	(20,536)	(20,079)	(19,443)	(19,160)	(19,192)	(19,186)	(19,460)
24	(21,602)	(20,966)	(20,075)	(19,657)	(19,160)	(18,814)	(18,862)	(18,930)	(19,133)
25	(21,186)	(20,656)	(19,613)	(19,250)	(18,611)	(18,365)	(18,455)	(18,614)	(18,810)
26	(20,713)	(20,320)	(19,115)	(18,828)	(18,191)	(18,075)	(18,310)	(18,308)	(18,611)
27	(20,339)	(20,076)	(18,791)	(18,431)	(17,915)	(17,866)	(18,088)	(18,064)	(18,232)
28	(20,010)	(19,741)	(18,465)	(18,096)	(17,650)	(17,538)	(17,735)	(17,567)	(17,947)
29	(19,732)	(19,413)	(17,991)	(17,761)	(17,612)	(17,218)	(17,463)	(17,257)	(17,611)
30	(19,450)	(19,073)	(17,746)	(17,349)	(17,101)	(16,972)	(17,158)	(16,891)	(17,266)
31	(19,021)	(18,790)	(17,231)	(17,039)	(16,925)	(16,693)	(16,923)	(16,610)	(16,999)
32	(18,631)	(18,419)	(16,997)	(16,745)	(16,679)	(16,362)	(16,597)	(16,460)	(16,670)
33	(18,217)	(17,982)	(16,597)	(16,582)	(16,385)	(16,080)	(16,280)	(16,180)	(16,360)
34	(17,901)	(17,601)	(16,371)	(16,274)	(16,051)	(15,767)	(15,952)	(15,771)	(16,118)
35	(17,620)	(17,076)	(15,957)	(15,868)	(15,706)	(15,469)	(15,672)	(15,615)	(15,936)
36	(17,186)	(16,736)	(15,590)	(15,537)	(15,383)	(15,186)	(15,428)	(15,445)	(15,696)
37	(16,907)	(16,172)	(15,289)	(15,170)	(14,915)	(14,913)	(15,171)	(15,186)	(15,452)
38	(16,679)	(15,838)	(14,896)	(14,807)	(14,506)	(14,663)	(14,789)	(14,985)	(15,161)
39	(16,216)	(15,587)	(14,662)	(14,603)	(14,154)	(14,266)	(14,296)	(14,783)	(14,955)
40	(15,909)	(15,171)	(14,166)	(13,966)	(13,697)	(13,839)	(14,033)	(14,467)	(14,613)
41	(15,597)	(14,771)	(13,802)	(13,567)	(13,495)	(13,517)	(13,809)	(14,099)	(14,216)
42	(15,265)	(14,328)	(13,427)	(13,165)	(13,166)	(13,076)	(13,453)	(13,809)	(14,002)
43	(14,908)	(13,929)	(13,166)	(12,889)	(12,841)	(12,756)	(13,158)	(13,551)	(13,822)
44	(14,513)	(13,568)	(12,879)	(12,643)	(12,516)	(12,363)	(12,850)	(13,167)	(13,538)
45	(14,263)	(13,268)	(12,595)	(12,607)	(12,277)	(11,978)	(12,555)	(12,627)	(13,116)
46	(13,781)	(13,036)	(12,266)	(12,016)	(11,816)	(11,567)	(11,979)	(12,080)	(12,768)
47	(13,376)	(12,702)	(11,887)	(11,789)	(11,586)	(11,389)	(11,666)	(11,773)	(12,366)
48	(13,053)	(12,526)	(11,586)	(11,466)	(11,233)	(11,071)	(11,261)	(11,471)	(12,013)
49	(12,770)	(12,301)	(11,285)	(11,112)	(11,062)	(10,830)	(10,995)	(11,260)	(11,680)
50	(12,381)	(12,046)	(11,028)	(10,922)	(10,668)	(10,569)	(10,661)	(10,923)	(11,267)
51	(12,183)	(11,813)	(10,766)	(10,676)	(10,319)	(10,277)	(10,376)	(10,529)	(11,062)
52	(11,971)	(11,560)	(10,561)	(10,436)	(10,120)	(9,953)	(10,163)	(10,332)	(10,716)
53	(11,723)	(11,307)	(10,228)	(10,193)	(9,936)	(9,663)	(9,914)	(10,127)	(10,636)
54	(11,468)	(11,030)	(10,008)	(9,928)	(9,611)	(9,575)	(9,660)	(9,866)	(10,107)
55	(10,965)	(10,994)	(9,762)	(9,631)	(9,268)	(9,237)	(9,487)	(9,660)	(9,912)
56	(10,662)	(10,825)	(9,366)	(9,363)	(9,081)	(8,953)	(9,103)	(9,430)	(9,986)
57	(10,275)	(9,785)	(9,051)	(8,984)	(8,830)	(8,675)	(8,868)	(9,090)	(9,126)
58	(9,990)	(9,362)	(8,776)	(8,666)	(8,160)	(8,453)	(8,611)	(8,872)	(8,899)
59	(9,635)	(9,068)	(8,366)	(8,089)	(7,721)	(8,220)	(8,316)	(8,551)	(8,581)
60	(9,405)	(8,739)	(8,069)	(7,736)	(7,603)	(7,903)	(8,038)	(8,310)	(8,326)
61	(9,167)	(8,420)	(7,505)	(7,257)	(7,028)	(7,524)	(7,601)	(7,988)	(7,966)
62	(8,782)	(8,098)	(7,287)	(7,069)	(6,729)	(7,159)	(7,396)	(7,656)	(7,647)
63	(8,358)	(7,803)	(6,994)	(6,768)	(6,432)	(6,831)	(7,157)	(7,329)	(7,469)
64	(8,063)	(7,443)	(6,695)	(6,115)	(6,250)	(6,458)	(6,736)	(7,029)	(7,223)
65	(7,863)	(7,066)	(6,358)	(5,799)	(5,796)	(6,153)	(6,369)	(6,578)	(7,015)
66	(7,439)	(6,763)	(6,053)	(5,653)	(5,619)	(5,885)	(5,911)	(6,211)	(6,376)
67	(6,961)	(6,331)	(5,711)	(5,323)	(5,033)	(5,496)	(5,566)	(5,837)	(6,196)
68	(6,688)	(5,981)	(5,269)	(4,858)	(4,753)	(5,017)	(5,127)	(5,515)	(5,893)
69	(6,175)	(5,597)	(4,639)	(4,456)	(4,377)	(4,435)	(4,636)	(5,067)	(5,395)
70	(5,787)	(5,270)	(4,378)	(4,125)	(3,867)	(3,818)	(4,061)	(4,773)	(5,125)
71	(5,368)	(4,909)	(4,021)	(3,670)	(3,444)	(3,388)	(3,638)	(4,472)	(4,865)
72	(4,915)	(4,605)	(3,692)	(3,273)	(2,976)	(2,930)	(3,103)	(4,082)	(4,563)
73	(4,618)	(4,261)	(3,447)	(2,773)	(2,384)	(2,606)	(2,736)	(3,566)	(3,981)
74	(4,189)	(3,693)	(3,223)	(2,369)	(1,961)	(2,311)	(2,622)	(3,012)	(3,627)
75	(3,807)	(3,166)	(2,832)	(2,126)	(1,674)	(1,983)	(1,909)	(2,642)	(3,216)
76	(3,313)	(2,676)	(2,393)	(1,878)	(1,395)	(1,356)	(1,446)	(2,123)	(2,782)
77	(2,858)	(2,297)	(2,068)	(1,363)	(782)	(762)	(1,027)	(1,589)	(2,343)
78	(2,451)	(1,925)	(1,660)	(617)	(226)	(238)	(556)	(1,131)	(1,752)
79	(1,876)	(1,421)	(881)	(191)	273	228	(128)	(672)	(1,319)
80	(1,378)	(899)	(321)	289	434	429	262	(375)	(642)
81	(779)	(444)	315	761	970	1,148	718	176	(265)
82	(311)	(176)	797	1,042	1,323	1,438	1,226	579	281
83	28	369	1,323	1,502	1,690	1,885	1,721	885	645
84	517	722	1,778	1,961	2,206	2,442	2,173	1,641	1,069
85	1,073	1,317	2,213	2,497	2,779	2,843	2,709	2,303	1,525
86	1,435	1,808	2,692	2,968	3,406	3,352	3,257	2,772	2,218
87	2,236	2,319	3,401	3,868	4,025	3,996	4,010	3,128	2,868
88	3,135	3,482	4,463	4,911	4,594	4,605	4,227	3,564	3,263
89	3,695	4,084	5,236	5,501	5,339	4,996	5,107	4,222	3,693
90	4,026	4,711	5,798	6,052	5,757	5,356	5,634	5,019	4,446
91	4,598	5,383	6,419	6,437	6,486	6,473	6,444	5,868	5,080
92	5,436	5,952	7,062	7,180	7,259	7,262	7,414	6,520	5,797
93	6,084	6,732	8,070	8,062	8,251	8,062	8,080	7,318	6,566
94	7,936	7,627	9,217	8,923	8,926	8,988	8,754	8,217	7,617
95	9,021	9,468	10,122	10,121	10,064	9,925	9,716	9,298	8,726
96	10,799	11,078	11,606	12,260	11,260	10,964	10,397	10,328	9,671
97	11,917	13,087	13,141	13,455	12,781	12,083	11,513	11,266	11,099
98	14,582	15,796	15,576	15,422	14,764	14,436	13,767	12,982	13,451
99	18,997	19,280	19,375	19,810	20,136	19,616	18,429	16,971	17,052
100	25,636	25,542	25,491	25,326	25,460	25,714	24,304	23,114	22,560
Mean	(11,980)	(11,621)	(10,523)	(10,159)	(9,866)	(9,832)	(9,950)	(10,180)	(10,513)
StDev	12,633	12,723	12,545	12,422	12,202	12,011	11,895	11,521	11,466

Appendix Table C-2: Simulated Annualized Income CDFs, Cluster A, No Price Intervention, Base Price Scenario, Brown Soils, Saskatchewan

Percentile	Ag = (ag)								
Ag	65	70	75	80	85	90	95	100	105
1	(26,617)	(26,129)	(26,030)	(24,399)	(22,177)	(22,362)	(21,166)	(20,796)	(22,026)
2	(19,780)	(19,171)	(17,640)	(17,092)	(16,805)	(17,426)	(17,214)	(16,930)	(17,128)
3	(16,163)	(16,262)	(15,611)	(16,999)	(16,965)	(16,360)	(16,446)	(16,396)	(16,386)
4	(14,333)	(14,116)	(13,230)	(12,772)	(12,565)	(12,026)	(12,162)	(12,656)	(12,968)
5	(12,776)	(12,136)	(11,711)	(10,720)	(10,201)	(9,091)	(10,388)	(10,917)	(11,432)
6	(11,649)	(10,840)	(10,582)	(9,796)	(8,832)	(8,456)	(8,761)	(9,136)	(9,905)
7	(10,176)	(9,896)	(9,055)	(8,111)	(7,980)	(7,660)	(7,626)	(7,985)	(8,722)
8	(8,948)	(8,717)	(7,784)	(6,993)	(6,772)	(6,359)	(6,612)	(6,892)	(8,019)
9	(7,952)	(7,369)	(6,356)	(5,682)	(5,629)	(5,519)	(5,826)	(6,176)	(7,454)
10	(6,963)	(6,408)	(6,789)	(6,395)	(6,603)	(6,571)	(5,199)	(5,677)	(6,711)
11	(6,157)	(5,685)	(3,057)	(3,898)	(3,932)	(3,926)	(4,703)	(4,995)	(5,867)
12	(4,940)	(4,578)	(3,389)	(3,358)	(2,967)	(3,267)	(4,064)	(4,954)	(4,963)
13	(3,926)	(3,685)	(2,635)	(2,935)	(2,103)	(2,588)	(2,864)	(3,633)	(3,951)
14	(3,117)	(2,869)	(1,932)	(2,106)	(1,288)	(1,639)	(1,992)	(2,995)	(3,108)
15	(2,601)	(2,379)	(1,371)	(1,351)	(393)	(1,001)	(1,992)	(1,656)	(2,498)
16	(1,993)	(1,518)	(774)	(216)	205	(316)	(975)	(1,138)	(2,006)
17	(881)	(963)	61	699	961	275	(63)	(643)	(1,386)
18	(358)	(111)	676	1,357	1,368	882	517	23	(692)
19	(36)	386	1,444	1,972	1,879	1,287	1,388	432	(291)
20	506	862	2,117	2,690	2,415	1,757	1,933	1,136	286
21	1,230	1,693	2,700	3,266	2,869	2,387	2,397	1,930	923
22	1,836	2,333	3,014	3,722	3,407	2,866	2,779	2,619	1,761
23	2,434	3,078	3,961	4,231	4,005	3,771	3,284	3,006	2,211
24	3,267	3,581	4,526	4,345	4,432	4,158	3,980	3,421	2,581
25	3,938	4,214	4,993	4,916	5,103	4,660	4,365	3,930	3,044
26	4,529	4,961	5,796	5,733	5,534	5,302	4,674	4,261	3,525
27	5,016	5,363	6,532	6,360	6,101	5,952	5,176	4,672	3,888
28	5,662	6,013	6,926	7,136	6,665	6,336	5,791	5,212	4,362
29	6,028	6,586	7,605	7,635	6,991	6,729	6,199	5,820	4,748
30	6,693	7,197	7,836	8,000	7,322	7,136	6,699	6,280	5,236
31	7,435	7,665	8,648	8,641	7,860	7,617	7,038	6,538	5,701
32	7,973	8,095	9,138	8,862	8,340	7,953	7,296	7,014	6,158
33	8,357	8,609	9,686	9,262	8,799	8,389	7,675	7,413	6,668
34	8,996	9,196	9,811	9,710	9,126	8,954	8,136	7,739	6,919
35	9,314	9,678	10,155	10,105	9,527	9,288	8,685	8,089	7,270
36	9,736	10,144	10,677	10,564	9,958	9,703	9,142	8,632	7,725
37	10,078	10,648	10,919	10,964	10,599	10,117	9,597	8,776	8,125
38	10,434	10,790	11,384	11,306	11,108	10,742	10,156	9,166	8,373
39	10,957	11,335	11,679	11,901	11,552	11,036	10,479	9,596	8,579
40	11,420	11,874	12,213	12,242	11,864	11,392	10,865	9,929	8,678
41	11,937	12,446	12,524	12,867	12,174	11,927	11,131	10,257	9,363
42	12,458	12,832	13,014	13,105	12,579	12,260	11,350	10,635	9,780
43	12,870	13,958	13,358	13,389	13,073	12,665	11,619	10,976	10,101
44	13,361	13,437	13,783	13,714	13,382	13,139	12,116	11,349	10,386
45	13,652	13,844	14,054	14,049	13,869	13,515	12,522	11,858	10,891
46	14,085	14,444	14,682	14,339	14,272	13,903	12,948	12,166	11,444
47	14,701	14,936	14,996	14,813	14,639	14,295	13,422	12,564	11,993
48	15,340	15,366	15,309	15,091	15,126	14,686	13,784	13,057	12,436
49	15,698	15,862	15,611	15,370	15,458	14,770	14,188	13,487	12,928
50	15,976	16,486	15,833	15,831	15,720	15,195	14,642	13,879	13,489
51	16,388	16,701	16,309	16,686	15,962	15,582	14,997	14,267	13,743
52	16,994	17,035	17,023	17,315	16,283	16,088	14,977	14,522	14,060
53	17,508	17,367	17,398	17,548	16,563	16,266	15,266	14,899	14,434
54	17,253	17,626	17,747	17,956	17,167	16,568	15,634	15,378	14,883
55	17,662	18,133	18,225	18,682	17,384	17,058	16,108	16,065	15,114
56	18,254	18,595	18,747	19,099	17,885	17,680	16,608	16,366	15,743
57	18,719	19,079	19,209	19,617	18,522	17,961	17,062	16,985	16,188
58	19,625	19,602	20,038	19,855	19,203	18,515	17,646	17,363	16,634
59	19,798	20,038	20,586	20,359	19,643	19,067	18,136	17,656	17,076
60	20,383	20,534	20,863	20,641	20,176	19,565	18,670	17,999	17,578
61	20,647	21,044	21,282	21,365	20,773	20,085	19,299	18,617	17,911
62	21,012	21,554	21,780	21,825	21,388	20,632	20,021	19,190	18,297
63	21,506	21,956	22,250	22,214	21,928	21,121	20,631	19,918	18,653
64	21,783	22,256	22,719	22,623	22,284	21,571	21,196	20,590	18,962
65	22,108	22,674	23,171	22,858	22,565	22,317	21,698	21,076	19,552
66	22,812	23,342	23,565	23,378	23,065	22,902	21,969	21,352	20,116
67	23,426	23,756	24,118	23,895	23,516	23,286	22,351	21,871	20,497
68	24,027	24,478	24,662	24,539	24,139	24,134	22,966	22,365	20,836
69	24,644	24,939	25,234	24,576	24,644	23,882	23,321	22,761	21,269
70	25,101	25,380	25,955	25,102	25,227	24,395	23,762	23,113	21,586
71	25,599	25,961	26,326	25,566	25,632	25,080	24,064	23,470	21,934
72	26,039	26,426	26,795	26,079	26,178	25,672	24,529	23,862	22,266
73	26,760	26,756	27,199	26,953	26,764	25,886	25,282	24,271	22,668
74	27,213	27,159	27,677	27,251	27,330	26,517	25,781	24,779	23,166
75	27,909	27,760	28,144	27,716	27,995	27,326	26,366	25,260	23,661
76	28,634	28,351	28,666	28,239	28,680	27,814	27,212	25,644	24,188
77	29,083	29,023	29,050	28,605	28,830	28,334	27,777	26,051	24,899
78	29,415	29,456	29,537	29,253	29,161	28,778	28,361	26,637	25,398
79	30,406	30,392	30,096	30,021	29,642	29,312	28,685	27,135	26,085
80	31,384	30,923	30,992	30,912	30,216	29,877	28,990	27,699	26,662
81	31,983	31,900	31,768	31,709	31,007	30,366	29,264	28,277	27,377
82	32,384	32,570	32,479	32,548	31,646	30,896	29,884	28,954	28,227
83	32,964	33,043	33,137	33,165	32,617	31,636	30,563	29,631	28,760
84	33,782	34,168	33,874	33,668	33,206	32,293	31,537	30,563	29,599
85	34,687	34,934	34,624	34,266	34,144	33,117	32,336	31,139	30,258
86	35,365	35,661	35,475	35,220	34,776	34,025	33,062	31,998	30,695
87	35,860	36,426	36,619	36,446	35,951	34,779	34,327	33,088	31,630
88	37,332	37,366	37,850	37,868	36,712	35,934	35,566	33,877	32,251
89	38,785	38,860	38,651	38,915	37,327	36,926	36,215	34,984	33,089
90	39,999	40,044	39,796	39,612	38,148	37,973	37,069	35,938	34,113
91	41,426	41,611	40,959	40,692	39,216	38,511	38,031	36,715	35,444
92	42,380	42,291	41,964	41,605	40,580	39,527	39,078	37,960	36,859
93	43,607	43,622	42,796	42,769	41,782	41,392	40,447	38,891	38,115
94	44,825	44,987	44,335	43,949	43,238	42,754	41,367	39,954	39,174
95	46,019	45,876	45,787	45,031	44,824	43,615	42,610	40,966	40,478
96	47,477	47,217	47,465	47,016	46,162	45,498	44,532	42,353	41,694
97	48,717	49,111	49,237	48,863	47,579	47,436	46,601	43,864	44,163
98	52,652	52,457	52,625	52,695	51,423	50,662	50,072	48,379	47,868
99	58,795	58,867	57,757	58,280	58,256	58,076	57,029	56,681	51,669
100	73,788	73,306	70,578	70,353	69,068	67,825	65,445	62,681	61,982
Mean	16,609	16,860	17,211	17,253	16,961	16,662	15,836	15,081	14,132
StDev	18,099	17,961	17,662	17,291	16,891	16,695	16,631	15,996	15,805

Appendix Table C-3: Simulated Annualized Income CDFs, Cluster 6, No Price Intervention, High Price Scenario, Brown Soils, Saskatchewan

Percentile	No + (ha)								
No	65	70	75	80	85	90	95	100	105
1	(9,265)	(8,072)	(7,992)	(6,232)	(6,666)	(8,606)	(7,271)	(6,667)	(7,917)
2	339	1,300	2,013	1,925	1,433	1,999	1,236	(316)	(272)
3	4,139	5,086	5,993	5,860	5,665	5,504	4,675	3,958	3,774
4	6,068	6,665	7,838	8,152	7,735	7,695	6,544	5,282	6,667
5	8,296	8,897	9,829	10,231	10,060	8,983	8,383	7,511	9,825
6	9,732	10,809	11,572	11,699	11,565	10,530	9,974	9,525	7,673
7	11,444	11,999	13,107	12,915	12,744	12,189	11,138	10,660	9,625
8	13,171	13,295	13,676	14,315	14,002	13,666	12,107	12,161	11,269
9	14,668	14,628	14,695	15,336	15,165	15,068	13,573	13,282	12,599
10	15,326	16,266	16,012	16,751	16,609	16,139	14,716	14,678	13,697
11	16,575	17,674	17,391	17,921	17,766	16,973	16,020	15,370	14,274
12	17,578	18,544	18,696	18,532	18,614	17,986	17,019	16,058	14,986
13	18,334	19,144	19,574	19,795	19,262	18,613	17,935	16,853	15,956
14	19,143	19,866	20,326	20,737	20,067	19,791	18,999	17,670	16,668
15	20,166	20,998	21,161	21,686	20,810	20,667	19,737	18,662	17,388
16	21,258	21,664	21,667	22,126	21,799	21,266	20,638	19,913	18,088
17	22,049	22,364	22,225	22,797	22,573	22,093	21,027	20,638	18,978
18	22,829	23,108	22,966	23,713	23,265	23,026	21,622	20,272	19,715
19	23,663	23,746	23,606	24,427	24,027	23,746	22,663	20,772	20,356
20	24,172	24,763	24,667	25,231	24,844	24,227	23,139	21,672	21,119
21	24,788	25,236	25,712	25,936	25,645	24,868	23,728	22,334	21,612
22	26,328	25,895	26,523	26,662	26,622	25,565	24,354	23,302	22,163
23	27,330	26,622	27,044	27,422	27,266	26,661	25,027	23,625	22,796
24	28,027	27,795	27,993	28,464	27,918	27,283	25,681	24,595	23,254
25	28,612	28,336	28,791	29,016	28,361	27,866	26,529	25,139	24,126
26	29,353	28,964	29,460	29,735	28,801	28,190	27,312	25,713	24,649
27	29,966	29,992	29,836	30,134	29,444	28,675	27,960	26,357	25,352
28	30,436	30,647	30,766	30,806	29,942	29,107	28,488	27,139	26,088
29	31,361	31,693	31,373	31,495	30,748	29,968	28,928	27,663	26,984
30	32,238	32,225	32,105	32,293	31,305	30,570	29,643	28,467	27,643
31	32,764	33,060	33,264	32,993	31,973	31,202	30,418	29,214	28,045
32	33,375	33,796	34,267	33,717	32,593	31,671	30,881	29,722	28,708
33	33,795	34,702	35,541	34,533	33,092	32,266	31,275	30,422	29,306
34	34,281	35,423	36,292	35,343	33,740	32,938	31,741	31,096	29,777
35	34,885	35,896	36,987	35,894	34,570	33,709	32,599	31,660	30,051
36	35,397	36,498	37,444	36,562	35,386	34,451	33,355	32,199	30,511
37	36,253	37,086	38,069	37,122	36,070	35,101	33,937	33,075	31,479
38	36,921	37,569	38,587	37,635	36,518	35,836	34,613	33,720	32,264
39	37,796	38,084	38,947	38,127	37,252	36,732	35,037	34,163	32,726
40	37,756	38,665	39,285	38,574	37,817	37,165	35,565	34,662	33,226
41	38,460	39,260	39,860	39,108	38,234	37,514	36,124	35,194	33,735
42	39,114	39,677	40,309	39,748	38,698	37,829	36,629	35,860	34,363
43	39,891	40,167	40,794	40,170	39,264	38,414	37,065	36,446	35,176
44	40,554	40,689	41,426	40,692	39,849	38,975	37,613	36,956	35,558
45	41,261	41,027	42,053	40,995	40,195	39,512	38,530	37,494	36,084
46	41,642	41,464	42,387	41,653	40,537	39,964	39,223	38,019	36,560
47	42,094	41,828	42,954	42,252	40,616	40,294	39,608	38,312	37,060
48	42,461	42,251	43,370	42,761	41,107	40,607	40,076	39,076	37,642
49	43,306	42,877	43,765	43,297	41,661	41,016	40,467	39,575	37,960
50	44,114	43,709	44,211	43,739	42,293	41,480	40,910	39,972	38,180
51	44,681	44,167	44,322	44,109	42,909	41,923	41,373	40,292	38,525
52	45,349	44,778	45,066	44,576	43,387	42,444	42,053	40,860	39,015
53	45,917	45,513	45,523	45,231	44,360	42,926	42,580	41,453	39,476
54	46,368	45,906	46,088	45,778	44,960	43,564	43,169	42,068	39,930
55	47,005	46,436	46,379	46,284	45,288	44,225	43,648	42,528	40,562
56	47,385	47,092	46,785	46,885	45,836	44,906	43,995	42,988	41,014
57	47,836	47,515	47,360	47,421	46,361	45,630	44,992	43,373	41,675
58	48,192	47,959	48,037	47,906	46,986	46,361	45,163	43,726	42,226
59	48,636	48,333	48,695	48,344	47,438	46,825	45,579	44,338	42,957
60	49,339	48,965	49,375	49,078	47,999	47,265	46,007	45,084	43,660
61	49,958	49,734	50,171	49,721	48,843	47,644	46,465	45,436	43,975
62	50,614	50,217	50,805	50,211	49,361	48,283	47,023	45,790	44,367
63	51,333	50,891	51,367	50,695	49,927	48,715	47,662	46,163	44,838
64	51,813	51,349	51,976	51,198	50,284	49,438	48,139	46,639	45,392
65	52,445	52,338	52,614	51,685	50,745	49,844	48,721	47,287	45,733
66	53,342	52,814	53,175	52,321	51,362	50,358	49,258	47,893	46,291
67	54,172	53,560	53,776	52,922	52,146	50,721	49,729	48,418	46,737
68	54,670	54,132	54,289	53,499	52,641	51,295	50,093	48,987	47,225
69	54,964	54,975	54,644	54,286	53,437	52,077	50,521	49,339	47,778
70	55,286	55,314	55,265	55,075	53,968	52,763	52,034	49,882	48,326
71	55,929	55,986	55,728	55,605	54,752	53,395	52,631	50,529	49,348
72	56,798	56,442	56,334	56,180	55,522	54,049	53,572	51,431	49,994
73	57,445	57,384	57,149	56,825	55,956	54,614	54,229	52,066	50,723
74	58,136	57,956	57,694	57,393	56,537	55,425	54,762	52,759	51,399
75	58,697	58,390	58,060	58,052	57,136	56,163	55,802	53,624	51,911
76	59,536	59,226	58,861	58,602	57,864	56,750	56,408	54,491	52,630
77	60,284	60,216	60,051	59,466	58,619	57,463	57,436	55,388	53,069
78	61,661	61,251	60,799	60,710	59,092	58,415	58,015	56,316	53,844
79	62,731	62,486	61,615	61,392	59,677	58,938	58,637	57,216	54,477
80	63,681	63,194	62,148	62,101	60,350	59,614	59,484	57,936	55,236
81	63,961	63,765	63,012	62,751	61,366	60,823	59,991	58,311	56,328
82	64,671	64,324	64,096	63,625	62,780	61,623	60,721	59,098	57,430
83	65,675	65,368	65,126	64,466	63,396	62,645	61,868	59,788	58,178
84	66,718	66,284	66,109	65,528	64,797	63,538	62,668	60,826	59,088
85	67,946	67,447	67,283	66,381	66,148	64,709	63,991	61,629	59,722
86	68,723	68,439	68,586	67,660	67,215	65,615	64,618	62,868	60,310
87	69,586	69,334	69,697	68,614	68,888	66,965	65,642	63,791	61,231
88	71,085	70,962	70,264	69,865	69,680	67,804	66,291	64,746	62,174
89	72,517	71,866	71,715	71,280	70,725	69,454	67,760	65,711	63,253
90	73,844	73,484	72,990	72,845	71,869	70,927	69,444	66,726	64,735
91	75,733	75,645	74,980	74,242	73,383	72,771	72,056	68,960	66,577
92	77,381	77,123	77,124	76,229	75,165	74,988	73,512	70,747	68,318
93	78,780	79,142	79,670	78,663	77,910	76,986	75,386	72,662	70,536
94	80,210	81,635	81,166	80,750	79,831	79,271	78,066	74,380	72,586
95	82,845	83,666	82,923	83,377	81,369	79,676	79,895	77,052	75,364
96	85,951	85,286	85,639	85,361	84,235	82,955	82,954	79,290	77,388
97	88,960	88,389	88,687	87,690	87,299	86,022	85,692	82,277	79,363
98	92,626	93,692	91,776	91,697	90,164	88,867	86,397	85,525	83,582
99	96,706	97,684	96,869	96,131	95,175	93,676	92,654	89,638	88,760
100	113,396	112,660	109,636	108,825	108,263	107,304	102,597	99,975	98,174
Mean	44,662	44,939	45,081	44,847	44,614	43,162	42,117	40,763	39,262
StDev	22,805	22,583	22,172	21,890	21,726	21,466	21,294	20,859	20,491

Appendix Table C-4: Simulated Annualized Income CDFs, Cluster A, Truncated Prices, Low Price Scenario, Brown Soils, Saskatchewan

Percentile	Nz = (ha)								
Nz	65	70	75	80	85	90	95	100	105
1	(38,435)	(37,737)	(36,680)	(35,623)	(34,642)	(33,773)	(33,490)	(32,238)	(32,153)
2	(34,828)	(33,794)	(32,881)	(31,190)	(30,373)	(29,603)	(29,431)	(29,406)	(29,039)
3	(31,679)	(31,321)	(29,953)	(28,674)	(28,023)	(27,307)	(27,403)	(27,139)	(27,055)
4	(30,335)	(29,779)	(28,281)	(27,050)	(26,756)	(26,226)	(26,010)	(25,856)	(25,977)
5	(29,579)	(28,652)	(27,700)	(26,596)	(26,016)	(25,470)	(25,980)	(26,940)	(25,160)
6	(29,443)	(27,941)	(26,817)	(25,651)	(25,361)	(24,678)	(25,396)	(26,326)	(26,311)
7	(28,066)	(27,062)	(25,766)	(24,822)	(24,453)	(24,186)	(25,700)	(25,602)	(23,675)
8	(27,205)	(26,289)	(25,023)	(24,330)	(24,249)	(23,635)	(25,158)	(22,979)	(23,116)
9	(26,667)	(25,575)	(24,361)	(23,605)	(23,560)	(22,956)	(22,577)	(22,516)	(22,677)
10	(26,289)	(24,817)	(23,631)	(23,264)	(23,065)	(22,457)	(21,876)	(21,886)	(22,319)
11	(25,531)	(24,321)	(23,142)	(22,706)	(22,499)	(21,793)	(21,289)	(21,279)	(21,757)
12	(24,632)	(23,698)	(22,773)	(22,167)	(21,733)	(21,099)	(20,795)	(20,673)	(21,466)
13	(24,093)	(23,199)	(22,297)	(21,617)	(21,087)	(20,495)	(20,360)	(20,487)	(21,269)
14	(23,619)	(22,697)	(21,821)	(21,157)	(20,699)	(20,201)	(20,180)	(20,374)	(20,988)
15	(23,094)	(22,326)	(21,395)	(20,715)	(20,305)	(19,776)	(19,864)	(20,050)	(20,946)
16	(22,567)	(21,960)	(20,976)	(20,178)	(19,787)	(19,428)	(19,662)	(19,799)	(20,256)
17	(22,164)	(21,649)	(20,578)	(19,783)	(19,360)	(19,027)	(19,370)	(19,996)	(19,996)
18	(21,961)	(21,085)	(20,169)	(19,516)	(19,115)	(18,762)	(19,029)	(19,280)	(19,763)
19	(21,512)	(20,686)	(19,869)	(19,264)	(18,988)	(18,566)	(18,730)	(18,992)	(19,586)
20	(21,062)	(20,136)	(19,440)	(18,955)	(18,665)	(18,261)	(18,436)	(18,617)	(19,311)
21	(20,587)	(19,860)	(19,121)	(18,671)	(18,417)	(17,912)	(18,114)	(18,333)	(18,695)
22	(20,285)	(19,601)	(18,701)	(18,364)	(18,089)	(17,592)	(17,790)	(17,966)	(18,386)
23	(19,913)	(19,239)	(18,393)	(18,262)	(17,860)	(17,356)	(17,574)	(17,967)	(17,960)
24	(19,723)	(18,776)	(18,129)	(17,714)	(17,136)	(17,230)	(17,388)	(17,232)	(17,653)
25	(19,663)	(18,339)	(17,660)	(17,283)	(16,606)	(16,923)	(17,116)	(16,956)	(17,363)
26	(18,983)	(18,166)	(17,607)	(16,973)	(16,376)	(16,380)	(16,627)	(16,673)	(17,086)
27	(18,679)	(17,953)	(17,161)	(16,580)	(16,096)	(16,051)	(16,662)	(16,638)	(16,766)
28	(18,467)	(17,728)	(16,766)	(16,164)	(15,623)	(15,662)	(16,005)	(16,137)	(16,523)
29	(18,199)	(17,472)	(16,619)	(15,930)	(15,472)	(15,636)	(15,799)	(15,735)	(16,236)
30	(17,900)	(17,146)	(16,219)	(15,561)	(15,261)	(15,421)	(15,466)	(15,460)	(15,917)
31	(17,570)	(16,863)	(15,906)	(15,336)	(14,972)	(15,170)	(15,261)	(15,139)	(15,665)
32	(17,226)	(16,609)	(15,667)	(15,128)	(14,705)	(14,963)	(14,986)	(14,876)	(15,433)
33	(16,951)	(16,289)	(15,338)	(14,856)	(14,361)	(14,654)	(14,950)	(14,616)	(15,131)
34	(16,784)	(16,051)	(14,927)	(14,523)	(14,132)	(14,327)	(14,183)	(14,356)	(14,669)
35	(16,515)	(15,803)	(14,667)	(14,164)	(13,856)	(14,050)	(13,930)	(14,145)	(14,575)
36	(16,192)	(15,533)	(14,295)	(13,902)	(13,553)	(13,699)	(13,573)	(13,862)	(14,269)
37	(15,875)	(15,262)	(14,072)	(13,550)	(13,384)	(13,462)	(13,575)	(13,567)	(13,968)
38	(15,564)	(14,972)	(13,631)	(13,390)	(13,163)	(13,195)	(13,167)	(13,319)	(13,775)
39	(15,232)	(14,732)	(13,532)	(13,021)	(12,880)	(12,970)	(12,952)	(13,073)	(13,580)
40	(14,923)	(14,605)	(13,380)	(12,629)	(12,481)	(12,652)	(12,679)	(12,856)	(13,290)
41	(14,663)	(14,190)	(12,936)	(12,425)	(12,286)	(12,387)	(12,380)	(12,636)	(13,084)
42	(14,286)	(13,886)	(12,630)	(12,193)	(11,860)	(12,131)	(12,092)	(12,353)	(12,880)
43	(14,026)	(13,569)	(12,261)	(11,946)	(11,458)	(11,928)	(11,986)	(12,150)	(12,619)
44	(13,732)	(13,201)	(12,019)	(11,660)	(11,215)	(11,679)	(11,753)	(11,896)	(12,386)
45	(13,301)	(12,983)	(11,636)	(11,449)	(11,010)	(11,305)	(11,488)	(11,782)	(12,093)
46	(13,179)	(12,644)	(11,674)	(11,220)	(10,682)	(11,102)	(11,264)	(11,539)	(11,866)
47	(12,867)	(12,419)	(11,455)	(10,942)	(10,563)	(10,820)	(11,070)	(11,266)	(11,596)
48	(12,692)	(12,138)	(11,147)	(10,630)	(10,372)	(10,523)	(10,779)	(11,040)	(11,332)
49	(12,125)	(11,821)	(10,893)	(10,447)	(10,199)	(10,314)	(10,547)	(10,737)	(10,938)
50	(11,871)	(11,442)	(10,667)	(10,260)	(9,880)	(10,128)	(10,360)	(10,576)	(10,685)
51	(11,665)	(11,211)	(10,442)	(9,846)	(9,801)	(9,862)	(10,087)	(10,325)	(10,466)
52	(11,261)	(10,966)	(10,182)	(9,606)	(9,642)	(9,748)	(9,779)	(10,066)	(10,256)
53	(10,930)	(10,622)	(9,776)	(9,436)	(9,671)	(9,607)	(9,585)	(9,773)	(10,064)
54	(10,768)	(10,328)	(9,572)	(9,327)	(9,272)	(9,385)	(9,237)	(9,993)	(9,630)
55	(10,667)	(10,066)	(9,355)	(9,099)	(8,983)	(9,079)	(9,156)	(9,320)	(9,665)
56	(10,180)	(9,753)	(9,227)	(8,760)	(8,669)	(8,707)	(8,923)	(9,060)	(9,303)
57	(9,960)	(9,437)	(8,957)	(8,576)	(8,457)	(8,733)	(8,569)	(8,769)	(9,065)
58	(9,630)	(9,177)	(8,649)	(8,280)	(8,212)	(8,196)	(8,230)	(8,613)	(9,020)
59	(9,323)	(8,977)	(8,386)	(8,011)	(7,992)	(7,966)	(8,065)	(8,423)	(8,638)
60	(9,092)	(8,698)	(8,128)	(7,726)	(7,773)	(7,665)	(7,856)	(8,177)	(8,432)
61	(8,867)	(8,499)	(7,866)	(7,562)	(7,538)	(7,431)	(7,566)	(7,875)	(8,276)
62	(8,692)	(8,328)	(7,525)	(7,270)	(7,234)	(7,220)	(7,290)	(7,572)	(8,093)
63	(8,661)	(8,142)	(7,170)	(6,906)	(7,029)	(6,952)	(7,007)	(7,235)	(7,836)
64	(8,366)	(7,845)	(6,882)	(6,781)	(6,739)	(6,536)	(6,790)	(6,820)	(7,517)
65	(8,026)	(7,561)	(6,675)	(6,519)	(6,419)	(6,103)	(6,388)	(6,588)	(7,137)
66	(7,669)	(7,229)	(6,312)	(6,299)	(6,182)	(5,982)	(5,970)	(6,177)	(6,790)
67	(7,485)	(6,988)	(5,977)	(5,955)	(5,926)	(5,682)	(5,730)	(5,882)	(6,587)
68	(7,261)	(6,676)	(5,666)	(5,647)	(5,326)	(5,269)	(5,130)	(5,663)	(6,269)
69	(6,943)	(6,411)	(5,397)	(5,396)	(4,889)	(4,877)	(4,790)	(5,036)	(5,988)
70	(6,543)	(5,976)	(5,106)	(5,017)	(4,602)	(4,557)	(4,579)	(4,746)	(5,725)
71	(6,176)	(5,666)	(4,886)	(4,731)	(4,316)	(4,433)	(4,290)	(4,567)	(5,411)
72	(5,922)	(5,522)	(4,682)	(4,396)	(4,036)	(4,123)	(4,121)	(4,264)	(4,970)
73	(5,629)	(5,269)	(4,466)	(4,096)	(3,726)	(3,830)	(3,881)	(4,069)	(4,562)
74	(5,117)	(4,814)	(4,161)	(3,721)	(3,452)	(3,497)	(3,612)	(3,843)	(4,198)
75	(4,695)	(4,386)	(3,735)	(3,413)	(3,166)	(3,448)	(3,449)	(3,552)	(3,899)
76	(4,373)	(4,211)	(3,617)	(3,131)	(2,902)	(3,058)	(3,126)	(3,314)	(3,599)
77	(3,995)	(3,876)	(3,096)	(2,865)	(2,566)	(2,795)	(2,828)	(3,043)	(3,273)
78	(3,614)	(3,498)	(2,799)	(2,625)	(2,313)	(2,384)	(2,695)	(2,792)	(3,080)
79	(3,258)	(2,923)	(2,605)	(2,072)	(1,962)	(1,784)	(2,065)	(2,642)	(2,672)
80	(2,908)	(2,611)	(1,991)	(1,779)	(1,588)	(1,664)	(1,826)	(2,065)	(2,439)
81	(2,526)	(2,250)	(1,695)	(1,382)	(1,127)	(1,139)	(1,295)	(1,695)	(2,237)
82	(2,032)	(1,851)	(1,250)	(939)	(627)	(696)	(957)	(1,267)	(1,868)
83	(1,636)	(1,360)	(826)	(610)	(167)	(438)	(581)	(1,019)	(1,489)
84	(1,223)	(1,039)	(486)	(187)	187	(224)	(259)	(726)	(1,140)
85	(907)	(499)	(78)	374	518	386	176	(278)	(852)
86	(587)	181	377	802	1,025	643	661	991	(478)
87	97	615	930	1,191	1,474	1,228	1,228	1,716	720
88	662	1,082	1,386	1,689	1,999	1,809	1,684	1,720	909
89	1,076	1,549	1,835	2,261	2,489	2,141	2,007	1,986	1,849
90	1,667	2,314	2,570	3,107	3,030	2,730	2,636	2,113	1,527
91	2,199	2,690	3,448	3,773	3,532	3,744	3,088	2,641	2,095
92	3,266	3,798	4,471	4,442	4,279	4,439	3,890	3,085	2,986
93	4,211	4,732	5,239	5,388	5,326	4,967	4,490	3,673	3,306
94	5,171	5,427	5,976	6,101	6,260	5,976	5,272	4,728	4,267
95	6,198	6,521	6,997	6,732	7,203	6,879	6,499	5,767	5,276
96	7,067	7,326	8,295	8,715	8,630	8,239	7,727	6,897	6,798
97	8,795	9,147	10,060	9,867	10,328	10,023	8,981	8,271	7,965
98	10,899	11,041	12,087	12,016	12,895	11,922	11,421	10,518	10,025
99	14,522	14,796	15,066	15,574	15,582	15,765	15,364	13,660	12,779
100	21,071	21,513	21,395	21,137	20,712	20,539	20,296	19,306	16,072
Mean	(11,669)	(11,168)	(10,286)	(9,878)	(9,598)	(9,566)	(9,653)	(9,898)	(10,327)
Stdev	10,928	10,767	10,570	10,363	10,232	10,013	9,884	9,689	9,533

Appendix Table C-5: Simulated Annualized Income Effs, Cluster A, Truncated Prices, Base Price Scenario, Brown Soils, Saskatchewan

Percentile	No = (no)								
No	65	70	75	80	85	90	95	100	105
1	(22,660)	(22,020)	(20,946)	(19,092)	(16,233)	(10,611)	(17,276)	(16,602)	(17,725)
2	(16,010)	(15,373)	(15,108)	(14,795)	(13,067)	(12,356)	(12,909)	(12,896)	(13,253)
3	(12,787)	(11,600)	(11,605)	(10,396)	(9,952)	(9,663)	(10,065)	(10,583)	(11,266)
4	(9,995)	(9,395)	(8,703)	(8,363)	(8,099)	(7,399)	(8,795)	(8,866)	(9,255)
5	(7,961)	(8,062)	(7,069)	(6,160)	(6,020)	(6,956)	(7,066)	(7,595)	(8,195)
6	(6,396)	(6,014)	(5,061)	(4,666)	(5,396)	(5,207)	(6,160)	(6,013)	(6,705)
7	(5,561)	(4,667)	(4,605)	(3,662)	(3,670)	(3,626)	(4,577)	(4,907)	(5,760)
8	(4,595)	(4,115)	(3,666)	(3,110)	(2,902)	(3,756)	(3,695)	(4,000)	(4,763)
9	(4,201)	(3,661)	(2,625)	(2,252)	(2,106)	(2,660)	(2,577)	(3,167)	(3,817)
10	(3,209)	(2,660)	(1,785)	(1,363)	(1,252)	(1,512)	(1,936)	(2,261)	(3,161)
11	(2,367)	(1,636)	(919)	(702)	(365)	(915)	(1,350)	(1,651)	(2,730)
12	(1,533)	(1,175)	(144)	130	(17)	(312)	(809)	(1,300)	(2,060)
13	(625)	(618)	609	698	599	226	(421)	(726)	(1,692)
14	62	436	1,388	1,366	1,176	857	668	(333)	(881)
15	918	1,075	1,936	2,107	1,662	1,360	1,067	337	(362)
16	1,688	1,768	2,589	2,536	2,486	1,876	1,365	888	(36)
17	1,636	2,526	2,660	2,665	2,177	2,767	2,116	1,660	917
18	2,146	2,960	3,625	3,288	3,670	3,615	2,765	2,299	1,270
19	2,630	3,679	3,876	4,065	3,768	3,976	3,297	2,686	1,691
20	3,192	3,996	4,426	4,677	4,366	4,497	3,935	3,278	2,625
21	3,698	4,601	5,061	5,151	5,273	5,125	4,276	3,768	3,916
22	4,197	5,011	5,599	6,096	5,997	5,625	4,765	4,167	3,260
23	4,981	5,385	6,213	6,520	6,366	6,017	5,207	4,726	3,637
24	5,338	5,642	6,688	6,929	6,976	6,369	5,699	5,089	4,187
25	5,839	6,088	6,966	7,367	7,165	7,057	6,368	5,661	4,261
26	6,221	6,476	7,396	7,788	7,391	7,273	6,668	5,885	4,766
27	6,744	6,961	7,751	7,866	7,649	7,488	7,077	6,366	5,117
28	7,068	7,436	7,981	8,385	7,872	7,699	7,382	6,666	5,696
29	7,523	7,866	8,395	8,527	8,156	8,110	7,656	6,956	5,973
30	7,799	8,388	8,616	8,686	8,509	8,305	7,829	7,263	6,276
31	8,072	8,581	9,067	9,268	8,957	8,861	8,427	7,668	6,641
32	8,366	8,997	9,295	9,535	9,305	9,261	8,733	8,186	7,259
33	8,678	9,436	9,556	9,844	9,799	9,399	8,966	8,662	7,866
34	9,330	9,860	10,089	10,379	10,162	9,936	9,377	8,923	8,166
35	9,731	10,252	10,563	10,830	10,319	10,162	9,637	9,412	8,336
36	10,172	10,599	10,933	11,304	10,825	10,471	10,000	9,760	8,530
37	10,562	11,138	11,362	11,652	11,326	10,867	10,362	9,988	8,726
38	10,962	11,443	11,743	12,008	11,728	11,221	10,711	10,344	9,066
39	11,297	11,725	12,097	12,432	12,025	11,606	11,034	10,648	9,510
40	11,630	12,063	12,460	12,930	12,351	11,760	11,289	10,796	9,877
41	12,109	12,425	12,895	13,313	12,854	12,151	11,561	11,146	10,143
42	12,495	12,793	13,297	13,798	13,312	12,550	12,001	11,357	10,586
43	12,759	13,175	13,772	14,060	13,652	13,207	12,606	11,723	10,960
44	12,985	13,667	14,062	14,588	14,098	13,567	13,011	12,127	11,350
45	13,439	13,913	14,536	14,863	14,360	13,935	13,461	12,557	11,688
46	14,012	14,360	14,976	15,261	14,539	14,272	13,778	12,856	12,010
47	14,380	14,673	15,390	15,536	14,925	14,595	14,060	13,166	12,386
48	15,039	14,975	15,761	15,899	15,381	14,941	14,226	13,516	12,561
49	15,453	15,432	16,266	16,352	15,667	15,334	14,673	13,839	12,888
50	15,866	15,877	16,693	16,697	16,160	15,613	15,079	14,299	13,292
51	16,467	16,463	16,926	16,863	16,693	16,097	15,503	14,688	13,638
52	16,761	16,779	17,399	17,198	16,821	16,389	15,715	14,979	14,083
53	17,162	17,114	17,788	17,436	17,165	16,675	16,131	15,222	14,662
54	17,628	17,571	17,869	17,835	17,516	17,086	16,462	15,686	14,772
55	17,758	18,011	18,266	18,237	17,982	17,358	16,829	16,196	15,181
56	18,159	18,232	18,613	18,475	18,259	17,676	17,168	16,478	15,432
57	18,381	18,586	18,981	18,737	18,773	17,967	17,625	16,788	15,880
58	18,768	18,743	19,321	19,196	18,961	18,238	18,060	17,186	16,271
59	19,186	19,162	19,667	19,526	19,189	18,754	18,435	17,617	16,583
60	19,392	19,581	20,248	19,986	19,639	19,098	18,743	17,868	16,867
61	19,644	19,961	20,633	20,359	19,746	19,297	19,111	17,960	17,193
62	20,036	20,349	20,961	20,703	20,062	19,657	19,386	18,367	17,521
63	20,453	20,662	21,286	20,938	20,360	20,140	19,633	18,875	17,772
64	20,809	21,142	21,606	21,436	21,136	20,395	20,056	19,226	18,066
65	21,266	21,561	22,203	21,913	21,606	20,895	20,636	19,667	18,368
66	21,636	22,009	22,663	22,326	22,179	21,386	20,775	20,070	18,720
67	22,265	22,386	23,290	22,752	22,528	21,868	21,360	20,410	19,165
68	22,398	22,894	23,686	22,962	22,909	22,145	21,686	20,774	19,366
69	22,886	23,271	24,057	23,336	23,335	22,661	22,267	21,216	19,971
70	23,222	23,634	24,529	23,961	23,631	22,760	22,667	21,610	20,345
71	23,933	24,279	24,983	24,388	23,976	22,935	23,095	21,988	20,661
72	24,443	24,781	25,326	24,766	24,298	23,265	23,336	22,267	21,008
73	25,237	25,198	25,641	25,119	24,566	23,647	23,615	22,869	21,337
74	25,779	25,648	25,913	25,730	24,845	24,080	24,081	23,447	21,898
75	26,231	25,868	26,489	26,213	25,472	24,499	24,362	23,921	22,589
76	26,662	26,630	26,987	26,585	25,965	25,412	24,841	24,287	23,094
77	27,210	26,936	27,250	26,967	26,611	25,866	25,563	24,836	23,530
78	27,729	27,436	27,725	27,660	26,999	26,791	26,205	25,264	23,963
79	28,082	28,029	28,252	28,252	27,666	27,208	26,958	25,968	24,459
80	28,773	28,701	28,745	28,778	28,073	28,087	27,661	26,666	25,206
81	29,316	29,373	29,176	29,183	28,672	28,516	27,774	27,088	26,056
82	30,236	30,110	29,613	29,512	29,362	29,166	28,312	27,668	27,010
83	30,899	30,615	30,290	30,276	30,198	29,778	29,092	27,952	27,677
84	31,622	31,373	31,044	31,250	30,986	30,222	30,152	28,733	28,210
85	32,316	31,767	32,041	32,089	31,892	30,691	31,056	29,969	28,977
86	33,032	32,779	32,635	33,062	32,662	31,379	31,666	30,694	29,925
87	33,645	33,936	33,381	34,068	33,325	32,670	32,606	31,914	30,568
88	34,535	34,512	34,778	35,283	34,350	33,634	33,142	32,665	31,609
89	35,196	35,295	35,679	36,266	35,713	34,751	34,063	33,707	32,689
90	36,266	36,176	36,670	37,372	36,665	36,066	35,075	35,787	33,693
91	37,265	37,151	37,662	38,410	37,560	37,189	35,866	35,166	35,397
92	38,595	38,662	39,177	39,261	38,694	38,665	37,362	36,381	36,337
93	39,771	39,629	40,628	39,936	39,652	39,735	38,669	37,685	38,566
94	40,868	40,932	41,622	41,392	41,366	41,063	39,494	38,990	37,217
95	42,363	42,784	43,609	42,994	42,760	42,322	40,968	40,072	38,852
96	43,713	44,061	44,993	44,919	44,138	43,725	42,599	42,072	40,438
97	46,367	46,667	47,176	46,913	45,716	45,336	44,749	43,963	42,603
98	51,025	51,066	50,536	51,072	48,678	47,579	47,029	46,216	45,885
99	54,913	54,656	54,677	54,910	53,617	52,354	50,500	49,610	48,866
100	64,909	65,161	63,870	64,339	63,677	62,674	61,491	59,519	58,375
Mean	16,556	16,887	17,294	17,488	17,081	16,661	16,128	15,395	14,389
StDev	15,686	15,476	15,395	15,153	14,845	14,694	14,536	14,313	14,165

Appendix Table C-6: Simulated Annualized Income CDFs, Cluster A, Truncated Prices, High Price Scenario, Brown Soils, Saskatchewan

Percentile	Re = (mm)								
No	65	70	75	80	85	90	95	100	105
1	($,906)	($,357)	($,610)	(2,740)	(2,584)	(2,779)	(2,768)	(2,585)	(4,010)
2	4,123	4,199	4,388	5,006	4,668	5,446	5,319	4,881	2,792
3	7,195	7,916	7,367	7,747	7,361	7,423	7,344	6,378	4,614
4	9,061	10,437	10,096	10,184	9,939	9,953	8,748	8,636	7,104
5	11,723	11,897	11,826	12,366	12,160	11,979	11,268	10,391	8,633
6	13,263	13,486	13,765	13,748	14,004	13,376	13,073	12,693	10,125
7	14,616	14,913	15,767	14,582	15,386	14,779	13,886	13,718	11,671
8	15,632	16,197	17,226	17,674	16,725	15,561	14,736	14,621	12,679
9	16,263	17,260	18,457	18,836	17,997	17,179	15,630	15,665	13,960
10	17,492	17,868	19,396	19,736	19,133	17,711	17,104	16,726	14,976
11	18,196	18,869	20,497	20,498	19,780	19,102	18,289	17,319	16,323
12	19,226	20,290	21,469	21,142	20,661	20,288	19,399	18,276	17,218
13	20,766	21,373	22,491	22,367	21,411	21,233	20,077	19,268	18,358
14	22,279	22,717	23,269	23,064	22,649	21,996	20,886	20,283	19,681
15	23,128	23,568	24,083	24,094	23,360	22,667	21,783	21,178	19,768
16	23,833	24,413	24,384	24,693	23,962	23,271	22,633	21,933	20,375
17	24,693	25,110	24,927	25,166	24,953	24,086	23,010	22,288	20,641
18	25,398	25,648	25,712	25,795	25,213	24,788	23,632	22,686	21,366
19	26,089	26,223	26,304	26,210	26,139	25,171	24,570	23,766	22,112
20	26,432	26,630	26,867	26,685	26,659	25,727	25,268	24,271	22,762
21	26,979	27,171	27,439	27,288	27,244	26,323	25,754	24,589	23,367
22	27,468	27,960	28,136	27,998	27,679	26,778	26,094	25,188	23,917
23	28,484	28,886	28,832	28,644	28,351	27,186	26,669	25,868	24,167
24	29,099	29,418	29,648	29,185	28,985	27,685	27,084	26,468	24,386
25	29,598	30,069	30,023	29,618	29,196	27,996	27,380	26,662	25,117
26	30,282	30,721	30,381	30,284	29,625	28,736	27,777	27,252	25,993
27	30,944	31,270	30,776	30,858	30,130	29,459	28,458	27,868	25,951
28	31,586	31,828	31,145	31,716	30,703	30,099	29,195	28,588	26,768
29	32,445	32,397	32,049	32,417	31,418	30,748	29,882	29,049	27,251
30	33,194	33,065	32,841	32,974	32,265	31,284	30,598	29,574	27,636
31	33,676	33,708	33,536	33,649	32,951	31,756	31,127	29,882	28,270
32	34,636	34,297	34,406	34,393	33,723	32,139	31,642	30,272	28,744
33	35,212	34,915	34,913	34,733	34,276	32,879	32,066	30,928	29,311
34	35,563	35,552	35,412	35,184	34,817	33,478	32,511	31,388	29,788
35	36,057	36,088	35,859	35,566	35,098	34,132	33,067	31,952	30,281
36	36,677	36,598	36,256	36,088	35,649	34,702	33,582	32,384	30,588
37	36,878	36,882	36,783	36,372	36,099	35,111	34,127	32,777	31,196
38	37,438	37,522	37,382	36,927	36,697	35,782	34,797	33,386	31,631
39	37,970	38,058	37,860	37,516	37,190	36,438	35,367	33,988	32,610
40	38,644	38,605	38,316	38,118	37,673	37,006	35,949	34,512	33,114
41	39,079	39,033	38,611	38,519	38,079	37,445	36,485	35,061	33,561
42	39,617	39,691	39,256	39,132	38,573	37,966	37,021	35,628	34,138
43	40,267	40,160	40,113	39,826	39,132	38,433	37,363	35,903	34,661
44	40,877	40,653	40,739	40,482	39,652	38,762	37,998	36,588	35,135
45	41,717	41,434	41,531	41,283	40,156	39,176	38,357	36,718	35,568
46	42,313	42,138	41,970	41,884	40,618	39,737	38,942	37,285	36,193
47	43,006	42,645	42,623	42,440	41,086	40,243	39,427	37,637	36,747
48	43,399	43,098	43,235	43,196	41,532	40,888	39,686	38,160	37,278
49	43,816	43,652	43,886	43,712	42,062	41,606	39,973	38,536	37,618
50	44,398	44,315	44,693	44,437	43,061	42,289	40,576	39,062	38,073
51	44,887	44,878	45,066	44,883	43,693	42,838	41,201	39,702	38,691
52	45,171	45,368	45,567	45,399	44,342	43,379	41,873	40,236	39,073
53	45,632	45,669	46,078	45,729	44,861	43,868	42,388	40,827	39,616
54	46,073	46,386	46,668	46,189	45,365	44,137	42,886	41,539	40,153
55	46,733	46,899	47,109	46,785	45,827	44,679	43,491	42,018	40,630
56	47,339	47,362	47,574	47,196	46,099	45,123	44,025	42,444	41,212
57	48,125	47,768	47,977	47,709	46,649	45,673	44,353	43,343	41,766
58	48,625	48,239	48,439	48,081	47,185	46,238	45,363	43,779	42,318
59	49,152	49,047	48,961	48,398	47,711	46,723	45,891	44,694	42,943
60	49,828	49,487	49,486	49,038	48,182	47,233	46,434	44,981	43,375
61	50,409	50,099	49,832	50,213	48,615	47,682	47,259	45,319	43,799
62	50,858	50,711	50,575	50,730	49,171	47,863	47,775	45,968	44,072
63	51,319	51,397	51,045	51,184	49,696	48,492	48,297	46,728	44,635
64	51,779	51,988	51,885	51,766	50,281	49,133	48,760	47,171	45,068
65	52,026	52,391	52,495	52,167	51,044	49,761	49,281	47,566	45,566
66	52,611	52,938	53,020	52,571	51,641	50,316	50,073	48,099	46,277
67	53,236	53,491	53,545	53,126	51,938	51,049	50,627	48,531	47,044
68	53,947	54,074	54,196	53,560	52,360	51,984	51,323	49,198	47,671
69	54,382	54,518	54,742	54,186	53,230	52,384	51,799	49,786	48,375
70	55,260	55,202	55,095	54,693	53,795	52,762	52,281	50,284	49,032
71	55,936	55,920	55,536	55,209	53,992	53,250	52,676	51,051	49,496
72	56,625	56,446	56,057	55,668	54,713	53,839	53,321	51,646	50,036
73	57,069	57,067	56,477	55,987	55,369	54,403	53,825	52,142	50,469
74	57,681	57,800	57,193	56,597	55,997	54,911	54,125	52,631	51,036
75	58,267	58,096	57,670	57,332	56,586	55,487	54,599	53,314	51,617
76	58,721	58,688	58,309	57,872	57,260	56,075	55,160	53,827	52,018
77	59,162	59,434	59,051	58,726	57,916	56,611	55,844	54,430	52,599
78	59,636	60,353	59,730	59,449	58,612	57,444	56,260	55,140	53,086
79	60,536	60,847	60,436	59,970	59,134	58,288	56,730	55,592	53,643
80	61,110	61,375	60,989	60,432	59,781	58,627	57,333	56,066	54,071
81	61,571	61,793	61,660	61,026	60,411	59,166	58,157	56,599	54,662
82	62,063	62,157	62,062	61,499	60,863	59,563	58,647	57,021	55,435
83	62,669	62,797	62,439	62,085	61,497	60,316	59,434	57,968	56,312
84	63,670	63,414	63,008	63,172	61,842	60,900	60,027	58,635	56,985
85	64,976	64,086	64,947	64,148	62,219	61,645	60,569	59,717	57,647
86	65,898	65,382	65,849	65,809	63,287	62,079	61,235	60,290	58,362
87	67,012	66,319	66,835	66,148	64,305	62,631	62,063	60,810	59,016
88	68,235	67,969	67,981	67,363	65,353	63,951	63,009	61,562	59,673
89	69,330	69,176	68,861	68,761	66,327	65,099	64,308	62,606	60,988
90	70,847	70,889	70,099	69,718	67,963	66,376	64,889	63,636	61,972
91	72,531	72,747	71,373	71,052	69,636	68,256	67,726	65,261	63,036
92	73,725	73,745	72,607	72,551	71,260	69,599	68,961	66,979	64,470
93	76,982	76,618	76,843	73,710	72,378	71,525	70,696	68,918	65,988
94	78,575	78,686	75,657	76,672	74,376	73,383	72,520	69,980	67,976
95	79,217	78,991	78,466	77,232	76,186	76,098	73,871	71,330	69,698
96	81,683	81,382	80,969	79,974	78,668	77,331	75,619	73,376	71,239
97	84,575	83,728	83,607	83,206	82,283	81,498	79,871	75,710	73,575
98	87,739	87,256	87,476	86,787	85,323	84,663	82,973	80,196	77,586
99	92,736	91,254	90,853	89,960	89,381	88,021	87,163	84,285	81,959
100	101,886	100,739	99,633	98,629	97,826	96,376	95,496	92,629	89,928
Mean	44,791	44,835	44,836	44,628	43,735	42,819	41,952	40,595	38,961
StDev	20,573	20,297	20,027	19,744	19,474	19,250	19,162	18,844	18,447

Appendix Table C-7: Simulated Annualized Income CDFs, Cluster 4, Prime Insurance Policy, Low Price Scenario, Brown Soils, Saskatchewan

Percentile No	Ac = (ac) 60	70	75	80	85	90	95	100	105
1	(40,448)	(38,998)	(37,477)	(35,868)	(33,829)	(33,322)	(32,993)	(32,986)	(33,187)
2	(36,143)	(35,229)	(33,618)	(32,168)	(31,086)	(30,799)	(31,066)	(30,952)	(30,837)
3	(36,067)	(33,635)	(31,966)	(30,973)	(30,179)	(29,677)	(29,635)	(28,736)	(28,868)
4	(32,915)	(31,974)	(30,613)	(29,262)	(28,812)	(28,190)	(28,061)	(28,190)	(27,679)
5	(31,675)	(30,529)	(28,979)	(28,089)	(27,648)	(26,995)	(26,716)	(26,681)	(26,760)
6	(30,457)	(29,282)	(26,252)	(27,003)	(26,363)	(26,116)	(25,769)	(25,737)	(26,029)
7	(29,560)	(28,175)	(27,260)	(25,813)	(25,436)	(25,066)	(25,129)	(25,109)	(25,488)
8	(28,657)	(27,427)	(26,237)	(25,156)	(26,629)	(26,256)	(26,331)	(26,193)	(26,381)
9	(27,861)	(26,943)	(25,693)	(26,791)	(26,299)	(25,742)	(25,786)	(25,648)	(25,643)
10	(27,061)	(26,336)	(26,972)	(26,363)	(25,847)	(25,335)	(25,256)	(25,047)	(25,051)
11	(26,365)	(25,626)	(26,323)	(25,975)	(25,512)	(25,075)	(25,006)	(24,763)	(25,066)
12	(25,836)	(25,222)	(26,660)	(25,458)	(25,161)	(25,363)	(25,325)	(25,230)	(25,291)
13	(25,309)	(26,666)	(25,661)	(25,092)	(25,781)	(25,143)	(25,090)	(25,919)	(25,919)
14	(25,109)	(26,696)	(25,006)	(25,670)	(25,117)	(25,766)	(25,516)	(25,095)	(25,646)
15	(26,649)	(25,996)	(25,606)	(25,186)	(25,575)	(25,622)	(25,173)	(25,187)	(25,286)
16	(26,286)	(25,781)	(25,196)	(25,772)	(25,257)	(25,145)	(25,926)	(25,856)	(25,686)
17	(25,872)	(25,866)	(25,625)	(25,675)	(25,987)	(25,771)	(25,642)	(25,865)	(25,850)
18	(25,164)	(25,675)	(25,614)	(25,896)	(25,786)	(25,363)	(25,367)	(25,606)	(25,630)
19	(25,686)	(25,190)	(25,831)	(25,380)	(25,896)	(25,861)	(25,816)	(25,267)	(25,993)
20	(25,281)	(25,686)	(25,360)	(25,337)	(25,765)	(25,673)	(25,787)	(25,956)	(25,686)
21	(25,911)	(25,315)	(25,286)	(25,822)	(25,396)	(25,619)	(25,326)	(25,382)	(25,652)
22	(25,416)	(25,839)	(25,811)	(25,537)	(25,995)	(25,810)	(25,686)	(25,131)	(25,248)
23	(25,867)	(25,766)	(25,706)	(25,899)	(25,832)	(25,615)	(25,686)	(25,661)	(25,619)
24	(25,436)	(25,673)	(25,361)	(25,516)	(25,333)	(25,286)	(25,956)	(25,682)	(25,675)
25	(25,793)	(25,666)	(25,657)	(25,716)	(25,686)	(25,796)	(25,736)	(25,665)	(25,733)
26	(25,986)	(25,767)	(25,695)	(25,629)	(25,573)	(25,361)	(25,882)	(25,797)	(25,812)
27	(25,688)	(25,648)	(25,226)	(25,277)	(25,139)	(25,946)	(25,810)	(25,633)	(25,696)
28	(25,682)	(25,881)	(25,665)	(25,213)	(25,885)	(25,630)	(25,786)	(25,896)	(25,265)
29	(25,893)	(25,682)	(25,516)	(25,981)	(25,913)	(25,365)	(25,686)	(25,682)	(25,861)
30	(25,530)	(25,856)	(25,817)	(25,621)	(25,160)	(25,816)	(25,823)	(25,333)	(25,842)
31	(25,162)	(25,515)	(25,796)	(25,283)	(25,936)	(25,633)	(25,811)	(25,818)	(25,533)
32	(25,654)	(25,161)	(25,667)	(25,978)	(25,661)	(25,681)	(25,338)	(25,381)	(25,282)
33	(25,388)	(25,869)	(25,160)	(25,787)	(25,365)	(25,136)	(25,527)	(25,365)	(25,972)
34	(25,949)	(25,871)	(25,866)	(25,681)	(25,136)	(25,762)	(25,987)	(25,875)	(25,897)
35	(25,718)	(25,160)	(25,617)	(25,868)	(24,779)	(25,645)	(25,796)	(25,762)	(25,283)
36	(25,683)	(25,919)	(25,266)	(25,265)	(25,653)	(25,129)	(25,658)	(25,239)	(25,187)
37	(25,216)	(25,736)	(25,677)	(25,285)	(25,136)	(25,767)	(25,189)	(25,275)	(25,688)
38	(25,893)	(25,537)	(25,595)	(25,833)	(25,786)	(25,986)	(25,816)	(25,160)	(25,186)
39	(25,739)	(25,267)	(25,250)	(25,778)	(25,273)	(25,280)	(25,526)	(25,660)	(25,698)
40	(25,643)	(25,886)	(25,952)	(25,673)	(25,901)	(25,986)	(25,264)	(25,286)	(25,611)
41	(25,153)	(25,695)	(25,735)	(25,213)	(25,843)	(25,769)	(25,988)	(25,869)	(25,367)
42	(25,766)	(25,295)	(25,636)	(25,912)	(25,655)	(25,529)	(25,642)	(25,650)	(25,113)
43	(25,688)	(25,866)	(25,663)	(25,536)	(25,685)	(25,230)	(25,160)	(25,229)	(25,636)
44	(25,638)	(25,625)	(25,650)	(25,790)	(25,282)	(25,982)	(25,839)	(25,952)	(25,936)
45	(25,888)	(25,213)	(25,316)	(25,970)	(25,836)	(25,657)	(25,662)	(25,765)	(25,399)
46	(25,782)	(25,810)	(25,892)	(25,761)	(25,644)	(25,271)	(25,226)	(25,653)	(25,991)
47	(25,388)	(25,815)	(25,865)	(25,687)	(25,686)	(25,998)	(25,958)	(25,231)	(25,736)
48	(25,599)	(25,636)	(25,586)	(25,987)	(25,716)	(25,753)	(25,992)	(25,873)	(25,576)
49	(25,888)	(25,171)	(25,388)	(25,881)	(25,688)	(25,689)	(25,612)	(25,885)	(25,162)
50	(25,663)	(25,681)	(25,866)	(25,388)	(25,386)	(25,268)	(25,286)	(25,661)	(25,672)
51	(25,166)	(25,552)	(25,783)	(25,319)	(25,938)	(25,899)	(25,161)	(25,638)	(25,691)
52	(25,773)	(25,316)	(25,253)	(25,829)	(25,576)	(25,738)	(25,862)	(25,686)	(25,521)
53	(25,496)	(25,851)	(25,169)	(25,796)	(25,326)	(25,628)	(25,618)	(25,692)	(25,256)
54	(25,328)	(25,765)	(25,813)	(25,425)	(25,983)	(25,896)	(25,213)	(25,668)	(25,966)
55	(25,988)	(25,263)	(25,267)	(25,896)	(25,783)	(25,763)	(25,878)	(25,581)	(25,788)
56	(25,669)	(25,159)	(25,862)	(25,772)	(25,333)	(25,636)	(25,866)	(25,525)	(25,698)
57	(25,893)	(25,896)	(25,856)	(25,519)	(25,261)	(25,156)	(25,228)	(25,715)	(25,286)
58	(25,853)	(25,661)	(25,528)	(25,786)	(25,966)	(25,866)	(25,875)	(25,677)	(25,916)
59	(25,533)	(25,389)	(25,197)	(25,933)	(25,852)	(25,727)	(25,625)	(25,226)	(25,665)
60	(25,318)	(25,979)	(25,968)	(25,598)	(25,568)	(25,626)	(25,636)	(25,816)	(25,626)
61	(25,869)	(25,661)	(25,738)	(25,369)	(25,266)	(25,189)	(25,281)	(25,566)	(25,178)
62	(25,738)	(25,893)	(25,661)	(25,776)	(25,918)	(25,893)	(25,936)	(25,282)	(25,938)
63	(25,322)	(25,928)	(25,989)	(25,767)	(25,638)	(25,596)	(25,587)	(25,875)	(25,621)
64	(25,986)	(25,626)	(25,736)	(25,637)	(25,898)	(25,882)	(25,281)	(25,528)	(25,272)
65	(25,562)	(25,169)	(25,316)	(25,139)	(25,779)	(25,862)	(25,883)	(25,360)	(25,852)
66	(25,316)	(25,782)	(25,978)	(25,758)	(25,666)	(25,616)	(25,887)	(25,879)	(25,795)
67	(25,998)	(25,626)	(25,677)	(25,551)	(25,898)	(25,235)	(25,527)	(25,795)	(25,371)
68	(25,736)	(25,126)	(25,663)	(25,288)	(25,778)	(25,932)	(25,329)	(25,655)	(25,868)
69	(25,528)	(25,677)	(25,161)	(25,871)	(25,626)	(25,667)	(25,997)	(25,955)	(25,716)
70	(25,127)	(25,358)	(25,621)	(25,688)	(25,121)	(25,863)	(25,736)	(25,997)	(25,362)
71	(25,565)	(25,888)	(25,212)	(25,686)	(25,952)	(25,888)	(25,679)	(25,715)	(25,976)
72	(25,178)	(25,567)	(25,988)	(25,167)	(25,133)	(25,671)	(25,569)	(25,398)	(25,723)
73	(25,671)	(25,366)	(25,631)	(25,837)	(25,898)	(25,268)	(25,681)	(25,863)	(25,311)
74	(25,367)	(25,776)	(25,333)	(25,443)	(25,958)	(25,982)	(25,278)	(25,716)	(25,668)
75	(25,868)	(25,432)	(25,886)	(25,985)	(25,256)	(25,579)	(25,978)	(25,366)	(25,573)
76	(25,637)	(25,927)	(25,316)	(25,383)	(25,992)	(25,798)	(25,638)	(25,966)	(25,862)
77	(25,367)	(25,698)	(25,818)	(25,865)	(25,773)	(25,982)	(25,977)	(25,632)	(25,835)
78	(25,839)	(25,131)	(25,686)	(25,639)	(25,366)	(25,662)	(25,673)	(25,818)	(25,667)
79	(25,367)	(25,666)	(25,156)	(25,868)	(25,933)	(25,236)	(25,567)	(25,678)	(25,111)
80	(25,856)	(25,388)	(25,718)	(25,688)	(25,915)	(25,681)	(25,795)	(25,176)	(25,715)
81	(25,992)	(25,839)	(25,825)	(25,869)	(25,988)	(25,295)	(25,317)	(25,891)	(25,377)
82	(25,263)	(25,761)	(25,988)	(25,367)	(25,373)	(25,139)	(25,388)	(25,218)	(25,636)
83	(25,882)	(25,329)	(25,686)	(25,799)	(25,752)	(25,622)	(25,728)	(25,6)	(25,956)
84	(25,256)	(25,662)	(25,686)	(25,223)	(25,151)	(25,899)	(25,179)	(25,638)	(25,225)
85	(25,277)	(25,858)	(25,699)	(25,676)	(25,612)	(25,628)	(25,681)	(25,896)	(25,128)
86	(25,937)	(25,328)	(25,666)	(25,566)	(25,566)	(25,988)	(25,157)	(25,671)	(25,899)
87	(25,896)	(25,635)	(25,138)	(25,896)	(25,562)	(25,666)	(25,689)	(25,256)	(25,221)
88	(25,625)	(25,985)	(25,655)	(25,736)	(25,276)	(25,991)	(25,286)	(25,751)	(25,679)
89	(25,867)	(25,767)	(25,888)	(25,266)	(25,982)	(25,736)	(25,999)	(25,266)	(25,587)
90	(25,121)	(25,566)	(25,668)	(25,566)	(25,615)	(25,373)	(25,625)	(25,862)	(25,271)
91	(25,882)	(25,189)	(25,586)	(25,771)	(25,612)	(25,378)	(25,316)	(25,677)	(25,166)
92	(25,568)	(25,771)	(25,188)	(25,231)	(25,282)	(25,171)	(25,819)	(25,569)	(25,936)
93	(25,317)	(25,866)	(25,167)	(25,886)	(25,621)	(25,662)	(25,795)	(25,268)	(25,777)
94	(25,266)	(25,227)	(25,183)	(25,663)	(25,927)	(25,113)	(25,876)	(25,783)	(25,661)
95	(26,131)	(25,651)	(26,096)	(26,075)	(26,111)	(25,887)	(25,256)	(25,686)	(25,529)
96	(26,366)	(26,295)	(26,693)	(26,216)	(26,686)	(26,638)	(26,662)	(26,121)	(25,113)
97	(26,668)	(26,332)	(26,685)	(26,639)	(26,363)	(26,885)	(26,228)	(25,575)	(26,366)
98	(26,195)	(26,765)	(26,913)	(26,276)	(26,621)	(26,665)	(26,762)	(26,761)	(26,229)
99	(26,636)	(26,876)	(27,266)	(27,681)	(26,960)	(26,688)	(26,692)	(25,639)	(25,652)
100	(25,158)	(25,752)	(25,686)	(25,272)	(25,276)	(25,966)	(25,889)	(25,487)	(25,652)
Mean	(11,677)	(11,121)	(10,268)	(9,673)	(9,585)	(9,286)	(9,631)	(9,903)	(10,203)
Stdev	(2,214)	(2,866)	(1,791)	(1,521)	(1,276)	(1,016)	(0,912)	(0,785)	(0,788)

Appendix Table C-8: Simulated Annualized Income CDFs, Cluster A, Price Insurance Policy, Base Price Scenario, Brown Soils, Saskatchewan

Percentile	AC + (ha)								
No	65	70	75	80	85	90	95	100	105
1	(21,143)	(20,601)	(19,696)	(18,953)	(18,686)	(17,993)	(17,667)	(17,260)	(17,756)
2	(16,522)	(15,960)	(15,626)	(15,180)	(15,092)	(12,786)	(13,665)	(13,730)	(13,849)
3	(14,226)	(13,311)	(11,799)	(10,733)	(11,001)	(10,675)	(11,663)	(11,667)	(11,795)
4	(12,251)	(11,663)	(10,316)	(9,672)	(8,697)	(8,733)	(9,675)	(9,666)	(10,669)
5	(10,730)	(9,681)	(8,761)	(8,272)	(7,106)	(7,795)	(7,867)	(8,161)	(8,966)
6	(9,355)	(8,171)	(7,279)	(6,930)	(5,962)	(6,785)	(6,382)	(6,888)	(8,016)
7	(7,601)	(6,661)	(6,678)	(5,716)	(5,288)	(5,991)	(5,866)	(5,326)	(7,137)
8	(5,856)	(5,691)	(5,062)	(4,638)	(4,186)	(4,658)	(4,883)	(4,625)	(6,068)
9	(4,912)	(4,673)	(3,888)	(3,617)	(3,206)	(3,666)	(3,316)	(3,941)	(5,312)
10	(4,092)	(3,361)	(2,791)	(2,336)	(2,267)	(2,669)	(2,866)	(3,266)	(4,587)
11	(3,383)	(2,611)	(2,276)	(1,219)	(1,523)	(2,111)	(2,316)	(2,686)	(3,921)
12	(2,636)	(1,909)	(1,681)	(366)	(1,016)	(1,309)	(1,866)	(2,330)	(2,959)
13	(1,916)	(1,695)	(842)	(282)	(367)	(612)	(1,630)	(1,726)	(2,276)
14	(1,296)	(735)	(111)	45	43	(115)	(930)	(1,167)	(1,726)
15	(389)	(101)	388	386	913	386	(250)	(386)	(1,010)
16	176	285	773	843	1,326	1,071	156	(143)	(386)
17	661	849	1,264	1,447	2,006	1,618	981	388	(127)
18	1,087	1,154	1,777	1,846	2,606	2,256	1,649	721	217
19	1,279	1,736	2,079	2,340	2,796	2,726	2,027	1,389	788
20	1,793	2,230	2,788	2,912	3,199	3,098	2,387	1,971	988
21	2,336	2,685	3,416	3,361	3,632	3,498	2,737	2,233	1,388
22	2,916	3,180	3,926	4,027	4,013	3,943	3,219	2,686	1,669
23	3,164	3,723	4,307	4,447	4,525	4,217	3,799	3,125	1,991
24	3,668	4,347	4,966	4,788	4,783	4,636	4,191	3,588	2,367
25	4,141	4,646	5,399	5,215	5,293	5,148	4,648	4,066	2,952
26	4,686	5,085	6,169	5,730	5,661	5,560	4,992	4,330	2,974
27	4,886	5,686	6,612	6,299	6,102	5,936	5,536	4,638	3,295
28	5,362	5,936	7,073	6,852	6,643	6,269	5,935	4,914	3,617
29	6,051	6,388	7,371	7,131	7,083	6,715	6,253	5,326	4,322
30	6,721	6,992	7,660	7,361	7,676	7,096	6,577	5,777	4,647
31	7,287	7,553	8,082	8,307	8,266	7,614	6,931	6,063	5,316
32	7,738	8,054	8,525	8,629	8,799	8,267	7,298	6,716	5,643
33	8,017	8,361	8,951	9,273	9,115	8,572	7,809	7,087	6,138
34	8,476	8,771	9,377	9,888	9,625	9,252	8,286	7,526	6,446
35	8,925	9,136	9,988	10,349	10,021	9,781	8,721	7,997	7,083
36	9,286	9,621	10,395	10,704	10,539	9,992	9,107	8,293	7,585
37	9,900	9,940	10,795	11,263	10,923	10,387	9,376	8,562	8,136
38	9,782	10,016	11,188	11,739	11,389	10,610	9,799	9,102	8,352
39	10,194	10,386	11,649	12,018	11,683	10,949	10,196	9,514	8,798
40	10,728	10,673	11,780	12,312	11,946	11,434	10,494	10,029	9,187
41	11,180	11,245	12,123	12,649	12,252	11,673	10,895	10,395	9,543
42	11,545	11,760	12,502	13,030	12,562	12,056	11,261	10,760	9,965
43	11,918	12,264	12,966	13,260	12,925	12,445	11,727	11,291	10,287
44	12,327	12,698	13,268	13,521	13,173	12,846	12,106	11,686	10,737
45	12,776	13,080	13,763	13,992	13,537	13,215	12,619	12,172	11,209
46	13,023	13,536	14,267	14,339	13,845	13,723	12,964	12,525	11,771
47	13,396	13,770	14,519	14,809	14,211	13,938	13,265	12,762	12,161
48	13,726	14,215	15,017	15,211	14,525	14,382	13,766	13,162	12,467
49	14,286	14,763	15,461	15,617	14,975	14,683	14,107	13,858	12,766
50	14,904	15,311	15,887	16,071	15,262	14,982	14,449	14,188	13,162
51	15,446	15,838	16,138	16,360	15,598	15,316	14,812	14,515	13,597
52	15,938	16,191	16,532	16,812	15,913	15,644	15,211	14,873	14,061
53	16,317	16,638	16,957	17,143	16,379	15,868	15,589	15,301	14,398
54	16,979	17,200	17,168	17,621	16,843	16,259	16,031	15,778	14,741
55	17,667	17,715	17,626	17,953	17,447	16,644	16,672	16,043	15,139
56	18,186	18,081	18,079	18,316	17,799	17,028	17,338	16,536	15,560
57	18,646	18,525	18,373	18,660	18,063	17,356	17,648	17,066	16,113
58	19,236	19,063	19,207	19,060	18,472	18,191	18,067	17,438	16,364
59	19,695	19,386	19,799	19,626	18,913	18,734	18,352	17,766	17,002
60	19,951	19,831	20,129	19,799	19,329	19,116	18,819	18,138	17,432
61	20,098	20,619	20,606	20,260	19,633	19,457	19,088	18,530	17,775
62	20,799	20,963	21,079	20,744	20,186	20,026	19,443	18,932	18,134
63	21,291	21,367	21,615	21,331	20,747	20,468	19,911	19,344	18,653
64	21,661	21,807	21,974	21,665	21,307	20,915	20,362	19,886	18,998
65	22,035	22,186	22,464	22,020	21,766	21,316	20,739	20,031	19,189
66	22,686	22,728	22,866	22,516	22,332	21,923	21,388	20,559	19,688
67	23,064	23,263	23,442	22,831	22,789	22,267	21,891	21,035	19,917
68	23,645	23,825	23,956	23,443	23,436	22,845	22,417	21,519	20,366
69	24,082	24,378	24,448	24,178	24,263	23,236	23,017	22,179	20,841
70	24,636	25,263	25,062	24,674	24,895	23,629	23,446	22,842	21,363
71	25,084	25,768	25,363	25,226	25,483	24,456	24,101	23,366	21,915
72	25,730	26,143	26,137	25,800	26,112	25,057	24,644	23,673	22,442
73	26,195	26,333	26,636	26,457	26,563	25,728	25,190	24,131	23,013
74	26,658	26,995	27,271	27,324	27,086	26,260	25,781	24,661	23,442
75	27,611	27,316	27,859	28,226	27,686	26,866	26,338	25,080	23,866
76	27,894	27,767	28,313	28,771	28,218	27,536	26,774	25,515	24,446
77	28,644	28,458	29,095	29,171	28,799	28,062	27,239	26,044	24,888
78	29,190	29,116	29,625	29,632	29,254	28,741	27,698	26,511	25,666
79	29,560	29,886	30,525	30,173	29,691	29,161	28,360	26,747	26,136
80	30,295	30,262	31,189	30,563	30,491	29,576	28,975	27,309	26,567
81	31,156	31,196	31,766	31,119	31,088	30,015	29,306	28,058	26,963
82	31,819	32,088	32,328	31,930	31,563	30,619	29,928	28,692	27,347
83	32,236	32,656	32,960	32,660	32,138	31,470	30,866	29,326	28,139
84	32,621	33,648	33,641	33,304	32,779	32,441	31,451	30,147	29,114
85	33,666	34,160	34,331	34,276	33,390	32,935	32,280	30,938	30,286
86	34,889	34,788	35,033	34,963	34,262	33,666	33,147	31,752	31,063
87	35,385	35,886	35,919	35,649	34,886	34,635	34,081	32,663	31,951
88	36,769	37,661	36,839	36,934	35,903	35,573	34,998	33,544	33,087
89	38,156	38,600	37,643	37,991	37,223	36,394	35,621	34,928	34,171
90	39,266	39,538	38,867	38,959	38,044	37,629	36,872	36,049	35,111
91	40,245	40,243	40,086	40,152	40,169	39,002	38,132	37,108	36,238
92	41,338	41,382	41,963	41,998	41,336	40,838	39,888	38,172	37,266
93	42,677	42,918	43,338	42,263	42,338	42,196	40,991	39,338	37,985
94	43,966	44,862	44,960	44,271	43,679	43,635	42,221	40,727	39,269
95	45,387	45,385	45,986	45,732	44,664	44,716	43,388	42,162	40,649
96	47,336	46,968	47,688	47,636	46,427	46,133	45,336	43,966	42,777
97	49,665	48,857	48,984	49,696	48,885	47,971	46,776	45,662	44,082
98	51,982	52,252	51,746	52,336	51,792	50,911	49,886	48,271	46,963
99	55,263	55,539	55,361	55,369	55,980	54,488	53,113	52,062	49,973
100	60,331	60,322	60,225	59,843	59,570	59,014	57,940	55,648	54,706
Mean	16,523	16,660	17,322	17,395	17,147	16,734	16,137	15,369	14,489
StDev	14,706	14,957	14,296	14,074	13,843	13,602	13,516	13,184	13,084

Appendix Table C-9: Simulated Annualized Income CDFs, Climber A, Price Insurance Policy, High Price Scenario, Brown Soils, Saskatchewan

Percentile	Rc = (cm)								
No	65	70	75	80	85	90	95	100	105
1	(7,999)	(7,063)	(5,793)	(4,566)	(4,449)	(4,808)	(5,372)	(6,262)	(6,277)
2	1,743	3,311	4,973	3,526	3,391	3,045	2,722	2,783	1,582
3	5,638	6,625	6,563	6,726	7,001	7,714	6,190	6,282	5,347
4	8,346	8,523	9,307	9,030	9,262	10,142	9,260	8,436	7,990
5	10,664	10,965	11,279	11,306	11,272	12,063	10,521	9,936	9,601
6	12,376	13,254	13,422	13,037	13,132	13,188	12,084	11,479	10,002
7	13,938	14,643	14,991	15,271	14,248	14,395	13,216	12,286	11,390
8	15,149	15,864	16,268	16,367	15,716	15,646	14,440	13,730	12,443
9	16,188	17,230	17,566	17,536	17,001	16,437	15,350	14,721	13,588
10	17,261	18,444	18,333	18,115	18,221	17,388	16,341	15,972	14,639
11	18,388	19,435	19,730	19,342	19,276	17,999	17,330	17,103	15,906
12	19,482	20,217	20,726	20,409	19,991	19,020	18,290	17,951	17,008
13	20,299	20,646	21,579	21,264	20,663	20,319	19,236	18,986	17,860
14	21,342	21,980	22,936	22,092	21,232	21,100	20,256	19,101	18,536
15	22,375	22,888	23,960	23,116	22,689	22,061	21,027	19,643	19,123
16	23,720	23,696	25,773	25,049	23,983	23,083	21,686	20,630	19,791
17	24,361	24,579	26,367	26,360	25,706	25,656	22,374	21,088	20,229
18	25,076	26,923	25,149	25,195	26,261	23,960	23,154	21,610	20,792
19	25,767	25,953	25,743	26,192	26,962	26,673	23,995	22,633	21,226
20	26,301	26,882	26,446	26,830	25,367	25,344	24,652	23,141	21,632
21	26,907	26,627	27,180	27,355	26,158	26,098	25,092	23,788	22,648
22	27,363	27,616	27,748	27,998	26,714	26,666	25,773	24,701	23,284
23	28,225	28,438	28,264	28,382	27,469	27,221	26,234	25,398	23,973
24	28,825	29,027	29,136	29,336	28,267	27,841	26,736	25,888	25,711
25	29,642	29,673	29,873	29,936	28,713	28,340	27,146	26,319	25,167
26	30,285	30,099	30,466	30,352	29,101	28,839	27,570	27,139	25,966
27	30,765	30,566	31,170	31,266	29,998	29,165	27,996	27,766	25,933
28	30,986	31,020	31,988	31,866	30,618	29,715	28,532	28,128	26,281
29	31,582	31,641	32,447	32,236	31,121	30,280	29,071	28,539	26,868
30	32,278	32,081	32,945	32,860	31,703	30,660	29,586	29,016	27,600
31	32,698	32,618	33,651	33,336	32,291	31,057	30,195	29,457	28,228
32	33,076	33,243	34,183	33,662	32,799	31,732	30,672	29,822	28,641
33	33,573	33,743	34,587	33,996	33,515	32,362	31,425	30,327	29,039
34	34,389	34,334	34,918	34,796	34,014	32,962	32,209	30,980	29,642
35	35,096	35,106	35,263	35,261	34,634	33,688	32,611	31,584	30,131
36	35,701	35,748	35,817	35,783	35,118	34,113	33,443	31,885	30,566
37	36,276	36,096	36,121	36,066	35,736	34,676	34,061	32,582	31,209
38	36,688	36,612	36,699	36,268	36,129	35,241	34,599	33,092	31,653
39	37,185	36,909	37,114	37,045	36,528	35,787	35,128	33,731	32,186
40	37,636	37,609	38,032	37,581	37,053	36,211	35,521	34,446	32,967
41	38,219	38,159	38,737	38,060	37,643	36,890	36,060	34,961	33,432
42	38,691	38,775	39,134	38,706	37,836	37,412	36,533	35,345	33,761
43	39,262	39,163	39,589	39,238	38,374	37,837	36,969	35,677	34,285
44	39,923	39,733	40,093	39,986	39,004	38,195	37,488	35,996	34,649
45	40,452	40,458	40,561	40,693	39,913	38,775	37,992	36,378	35,012
46	40,888	40,843	41,277	41,271	40,644	39,135	38,397	36,936	35,384
47	41,497	41,366	41,967	41,868	41,094	39,648	38,726	37,311	35,968
48	42,256	42,219	42,560	42,365	41,689	40,412	39,288	37,878	36,321
49	42,788	42,875	43,016	42,788	41,953	40,994	39,689	38,303	36,758
50	43,233	43,363	43,617	43,103	42,314	41,374	40,071	38,976	37,160
51	43,744	44,077	43,689	43,636	42,956	42,027	41,219	39,387	37,598
52	44,489	44,366	44,379	44,088	43,682	42,462	41,668	39,712	38,272
53	45,355	44,963	45,096	44,684	44,027	42,784	42,262	40,109	38,649
54	45,919	45,386	45,535	45,066	44,368	43,239	42,716	40,665	39,086
55	46,631	45,998	46,060	45,790	44,675	43,946	43,086	40,978	39,643
56	47,097	46,636	46,717	46,332	45,123	44,293	43,388	41,369	39,735
57	47,611	47,062	47,263	46,971	45,574	44,705	43,618	41,639	40,286
58	47,966	47,535	47,729	47,366	45,960	45,089	44,088	42,041	40,736
59	48,325	48,030	48,280	47,921	46,438	45,729	44,389	43,138	41,443
60	48,968	48,854	48,813	48,364	47,153	46,243	44,948	43,706	41,982
61	49,586	49,338	49,321	48,665	47,729	46,826	45,631	44,256	42,375
62	49,967	50,017	49,613	49,199	48,213	47,383	46,302	44,884	42,960
63	50,616	50,753	50,130	49,766	48,677	48,056	46,996	45,373	43,586
64	51,288	51,206	50,605	50,343	49,425	48,709	47,429	45,759	44,119
65	51,857	51,627	51,115	50,860	49,987	49,305	48,087	46,096	44,939
66	52,416	52,149	51,560	51,429	50,906	49,883	48,532	46,702	45,575
67	52,986	52,648	51,996	52,082	51,439	50,603	49,189	47,438	46,299
68	53,559	53,234	52,439	52,588	52,291	51,089	49,758	48,069	46,887
69	54,043	53,696	53,139	53,016	52,886	51,632	50,388	48,876	47,606
70	54,665	54,447	53,719	53,648	53,317	52,436	50,969	49,432	48,085
71	55,232	55,216	54,723	54,440	53,826	53,080	51,269	49,919	48,536
72	55,576	55,678	55,498	55,266	54,226	53,533	51,760	50,366	49,069
73	56,095	56,215	56,421	55,863	54,772	54,087	52,326	51,032	49,582
74	56,525	56,749	56,999	56,309	55,417	54,683	52,684	51,362	50,009
75	57,155	57,206	57,719	57,093	55,980	55,287	53,342	52,223	50,489
76	57,793	58,008	58,223	57,561	56,791	55,732	53,999	52,794	51,126
77	58,138	58,529	58,886	58,286	57,369	56,267	54,626	53,484	51,974
78	58,686	59,772	60,014	59,043	58,074	56,762	55,285	54,294	52,662
79	60,445	60,988	60,685	60,182	58,934	57,598	55,993	55,213	53,706
80	61,727	61,987	61,686	61,027	59,912	58,364	56,523	55,887	54,192
81	63,279	62,632	62,335	61,745	61,069	59,151	57,377	56,688	54,993
82	64,251	63,952	63,197	62,511	61,773	59,888	58,188	57,021	55,835
83	65,210	64,998	64,061	63,377	62,593	60,731	59,191	57,938	56,746
84	66,226	65,951	65,083	64,098	63,671	61,879	59,963	58,708	56,996
85	67,199	67,110	65,632	66,110	63,636	62,838	61,096	59,397	57,723
86	68,106	67,850	66,743	66,991	64,602	63,630	62,193	60,974	58,754
87	68,811	68,831	67,997	67,948	65,360	64,370	63,142	62,294	59,745
88	70,014	69,930	69,300	68,966	66,449	65,188	64,606	63,376	61,173
89	71,272	70,615	70,581	70,036	67,781	67,441	65,735	64,760	62,360
90	72,276	72,122	71,802	70,760	68,857	68,771	67,425	66,081	64,257
91	73,308	73,093	72,364	72,518	70,088	69,813	68,766	67,961	65,458
92	74,686	73,888	73,935	73,351	71,667	71,262	69,825	68,162	66,710
93	76,460	76,685	75,674	74,966	74,086	72,960	71,144	69,176	67,927
94	78,660	78,388	77,335	76,280	75,720	74,513	73,343	71,149	69,178
95	80,690	80,776	79,350	78,696	77,218	76,067	74,997	72,692	71,092
96	82,991	82,096	81,237	80,880	79,866	77,971	76,868	76,384	72,966
97	86,918	84,951	83,966	82,641	81,490	80,610	79,017	77,666	75,093
98	88,343	88,068	88,279	86,998	84,962	83,511	82,381	80,998	79,436
99	93,667	94,488	93,809	92,986	91,512	90,118	88,986	87,983	87,049
100	117,467	116,699	115,819	115,252	113,869	111,913	110,497	107,712	105,545
Mean	44,706	44,799	44,730	44,499	43,833	42,752	41,682	40,367	38,668
Stdev	21,658	21,461	21,080	20,757	20,443	20,191	19,981	19,689	19,421

Appendix Table C-10: Simulated Annualized Income CDFs, Cluster A, Fixed Price Policy, Low Price Scenario, Brown Soils, Saskatchewan

Percentile	Rs x ($)								
%	60	70	75	80	85	90	95	100	105
1	(36,670)	(35,631)	(34,163)	(32,426)	(30,953)	(30,059)	(29,366)	(28,916)	(28,660)
2	(32,277)	(31,220)	(29,951)	(28,670)	(28,302)	(27,751)	(27,367)	(26,913)	(27,012)
3	(29,746)	(28,520)	(27,717)	(27,356)	(26,420)	(25,996)	(25,675)	(25,595)	(25,336)
4	(28,203)	(27,460)	(26,443)	(25,566)	(25,043)	(24,361)	(24,122)	(24,066)	(23,661)
5	(27,221)	(26,367)	(25,143)	(24,316)	(23,843)	(23,121)	(23,060)	(23,014)	(23,158)
6	(26,363)	(25,666)	(24,429)	(23,587)	(22,986)	(22,068)	(22,438)	(21,896)	(22,364)
7	(25,668)	(25,068)	(23,667)	(22,643)	(22,181)	(21,468)	(21,670)	(21,125)	(21,763)
8	(25,296)	(24,535)	(23,014)	(21,951)	(21,376)	(20,764)	(20,927)	(20,757)	(21,382)
9	(24,845)	(23,880)	(22,212)	(21,445)	(20,705)	(20,309)	(20,329)	(20,410)	(20,749)
10	(24,232)	(23,179)	(21,780)	(20,953)	(20,255)	(19,842)	(20,002)	(20,161)	(20,375)
11	(23,668)	(22,670)	(21,469)	(20,370)	(19,936)	(19,362)	(19,565)	(19,750)	(20,157)
12	(23,098)	(22,099)	(20,997)	(19,977)	(19,336)	(18,932)	(19,261)	(19,420)	(19,697)
13	(22,688)	(21,612)	(20,466)	(19,578)	(19,002)	(18,753)	(18,886)	(19,060)	(19,358)
14	(22,172)	(21,217)	(20,138)	(19,168)	(18,713)	(18,419)	(18,633)	(18,711)	(19,088)
15	(21,757)	(20,851)	(19,864)	(18,833)	(18,417)	(18,184)	(18,283)	(18,539)	(18,886)
16	(21,328)	(20,439)	(19,161)	(18,498)	(18,065)	(17,962)	(18,051)	(18,111)	(18,588)
17	(20,862)	(20,051)	(18,799)	(18,082)	(17,630)	(17,707)	(17,770)	(17,882)	(18,089)
18	(20,606)	(19,737)	(18,467)	(18,006)	(17,306)	(17,562)	(17,674)	(17,627)	(17,882)
19	(20,038)	(19,343)	(18,264)	(17,743)	(17,264)	(17,335)	(17,317)	(17,452)	(17,562)
20	(19,561)	(18,949)	(18,082)	(17,388)	(16,922)	(17,127)	(16,957)	(17,223)	(17,299)
21	(19,163)	(18,625)	(17,745)	(17,081)	(16,738)	(16,829)	(16,756)	(16,982)	(17,115)
22	(18,844)	(18,289)	(17,446)	(16,862)	(16,568)	(16,628)	(16,614)	(16,722)	(16,958)
23	(18,616)	(18,122)	(17,184)	(16,365)	(16,381)	(16,419)	(16,443)	(16,533)	(16,695)
24	(18,384)	(17,832)	(16,761)	(16,192)	(16,098)	(16,168)	(16,304)	(16,336)	(16,447)
25	(18,178)	(17,647)	(16,386)	(15,986)	(15,788)	(15,882)	(16,140)	(16,191)	(16,288)
26	(17,930)	(17,369)	(16,263)	(15,801)	(15,611)	(15,643)	(15,922)	(15,960)	(15,990)
27	(17,721)	(17,086)	(15,962)	(15,638)	(15,411)	(15,428)	(15,681)	(15,689)	(15,889)
28	(17,511)	(16,867)	(15,816)	(15,492)	(15,267)	(15,099)	(15,445)	(15,864)	(15,682)
29	(17,144)	(16,599)	(15,560)	(15,167)	(14,986)	(14,821)	(15,188)	(14,981)	(15,392)
30	(16,983)	(16,322)	(15,372)	(14,896)	(14,741)	(14,571)	(14,869)	(14,777)	(15,114)
31	(16,579)	(16,089)	(15,057)	(14,664)	(14,388)	(14,358)	(14,638)	(14,579)	(14,943)
32	(16,287)	(15,889)	(14,843)	(14,471)	(14,285)	(14,051)	(14,448)	(14,374)	(14,729)
33	(16,026)	(15,583)	(14,682)	(14,263)	(14,162)	(13,833)	(14,113)	(14,162)	(14,539)
34	(15,756)	(15,364)	(14,522)	(14,096)	(13,972)	(13,649)	(13,836)	(13,918)	(14,268)
35	(15,621)	(15,037)	(14,398)	(13,879)	(13,868)	(13,451)	(13,636)	(13,719)	(14,066)
36	(15,480)	(14,825)	(14,208)	(13,666)	(13,765)	(13,281)	(13,392)	(13,529)	(13,722)
37	(15,228)	(14,621)	(13,968)	(13,435)	(13,595)	(13,062)	(13,136)	(13,272)	(13,553)
38	(14,969)	(14,412)	(13,689)	(13,232)	(12,966)	(12,948)	(12,922)	(12,952)	(13,367)
39	(14,736)	(14,276)	(13,624)	(13,064)	(12,727)	(12,761)	(12,699)	(12,726)	(13,175)
40	(14,514)	(14,122)	(13,195)	(12,810)	(12,530)	(12,447)	(12,382)	(12,482)	(12,967)
41	(14,317)	(13,675)	(12,926)	(12,573)	(12,275)	(12,173)	(12,226)	(12,128)	(12,696)
42	(14,153)	(13,431)	(12,689)	(12,432)	(12,067)	(11,925)	(11,918)	(11,932)	(12,471)
43	(13,960)	(13,221)	(12,414)	(12,263)	(11,903)	(11,758)	(11,621)	(11,726)	(12,288)
44	(13,688)	(13,204)	(12,160)	(11,903)	(11,651)	(11,449)	(11,317)	(11,507)	(12,057)
45	(13,353)	(12,990)	(11,899)	(11,589)	(11,412)	(11,299)	(11,118)	(11,360)	(11,889)
46	(13,095)	(12,695)	(11,362)	(11,440)	(11,131)	(11,086)	(10,936)	(11,250)	(11,673)
47	(12,945)	(12,362)	(11,334)	(11,227)	(10,961)	(10,617)	(10,705)	(11,067)	(11,444)
48	(12,736)	(12,114)	(11,051)	(10,933)	(10,699)	(10,482)	(10,399)	(10,836)	(11,280)
49	(12,479)	(11,674)	(10,869)	(10,679)	(10,326)	(10,243)	(10,180)	(10,649)	(11,066)
50	(12,173)	(11,566)	(10,695)	(10,382)	(10,061)	(10,002)	(9,836)	(10,440)	(10,864)
51	(11,830)	(11,330)	(10,529)	(10,226)	(9,788)	(9,813)	(9,606)	(10,306)	(10,696)
52	(11,595)	(11,156)	(10,337)	(10,151)	(9,629)	(9,576)	(9,515)	(10,035)	(10,566)
53	(11,326)	(10,963)	(10,112)	(9,926)	(9,610)	(9,360)	(9,317)	(9,865)	(10,314)
54	(11,206)	(10,667)	(9,770)	(9,652)	(9,210)	(9,106)	(9,054)	(9,571)	(9,963)
55	(11,072)	(10,434)	(9,561)	(9,448)	(8,977)	(8,829)	(8,938)	(9,423)	(9,782)
56	(10,926)	(10,264)	(9,377)	(9,167)	(8,795)	(8,682)	(8,691)	(9,225)	(9,665)
57	(10,743)	(9,987)	(9,230)	(8,998)	(8,564)	(8,532)	(8,569)	(8,965)	(9,310)
58	(10,642)	(9,775)	(9,083)	(8,848)	(8,331)	(8,330)	(8,488)	(8,697)	(9,156)
59	(10,112)	(9,364)	(8,780)	(8,595)	(8,126)	(8,226)	(8,263)	(8,465)	(8,906)
60	(9,986)	(9,304)	(8,952)	(8,176)	(8,026)	(8,075)	(8,078)	(8,317)	(8,710)
61	(9,644)	(9,100)	(8,330)	(8,029)	(7,890)	(7,915)	(7,913)	(8,145)	(8,565)
62	(9,390)	(9,020)	(8,127)	(7,783)	(7,699)	(7,806)	(7,765)	(7,922)	(8,395)
63	(9,200)	(8,840)	(7,990)	(7,563)	(7,673)	(7,627)	(7,566)	(7,699)	(8,220)
64	(9,014)	(8,600)	(7,792)	(7,332)	(7,383)	(7,390)	(7,386)	(7,473)	(8,061)
65	(8,818)	(8,365)	(7,551)	(7,166)	(6,964)	(7,197)	(7,183)	(7,299)	(7,826)
66	(8,586)	(8,073)	(7,316)	(6,939)	(6,775)	(7,007)	(6,969)	(7,159)	(7,537)
67	(8,305)	(7,911)	(7,170)	(6,843)	(6,551)	(6,871)	(6,761)	(6,956)	(7,366)
68	(7,963)	(7,675)	(7,012)	(6,732)	(6,372)	(6,514)	(6,335)	(6,757)	(7,171)
69	(7,819)	(7,438)	(6,825)	(6,526)	(6,199)	(6,238)	(6,333)	(6,519)	(6,985)
70	(7,627)	(7,227)	(6,596)	(6,253)	(5,951)	(6,066)	(6,119)	(6,321)	(6,795)
71	(7,356)	(7,095)	(6,390)	(6,051)	(5,644)	(5,737)	(5,970)	(6,123)	(6,590)
72	(7,128)	(6,913)	(6,229)	(5,838)	(5,552)	(5,552)	(5,653)	(5,943)	(6,287)
73	(6,912)	(6,689)	(6,016)	(5,679)	(5,151)	(5,318)	(5,388)	(5,735)	(5,962)
74	(6,561)	(6,489)	(5,689)	(5,446)	(4,876)	(4,995)	(5,056)	(5,339)	(5,667)
75	(6,364)	(6,123)	(5,321)	(5,104)	(4,599)	(4,736)	(4,709)	(5,082)	(5,296)
76	(6,077)	(5,846)	(5,036)	(4,982)	(4,380)	(4,446)	(4,489)	(4,732)	(4,973)
77	(5,888)	(5,588)	(4,695)	(4,645)	(4,086)	(4,175)	(4,198)	(4,533)	(4,994)
78	(5,666)	(5,195)	(4,237)	(4,070)	(3,636)	(3,992)	(3,829)	(4,256)	(4,379)
79	(5,266)	(4,760)	(3,977)	(3,833)	(3,394)	(3,573)	(3,648)	(3,963)	(4,229)
80	(5,052)	(4,395)	(3,645)	(3,444)	(3,280)	(3,331)	(3,112)	(3,741)	(4,010)
81	(4,638)	(3,886)	(3,076)	(2,911)	(2,648)	(2,962)	(2,923)	(3,326)	(3,663)
82	(4,332)	(3,502)	(2,700)	(2,662)	(2,290)	(2,512)	(2,661)	(2,879)	(3,166)
83	(3,749)	(3,237)	(2,366)	(2,120)	(1,978)	(2,162)	(2,326)	(2,599)	(2,936)
84	(3,397)	(2,966)	(1,832)	(1,670)	(1,562)	(1,708)	(1,966)	(2,225)	(2,629)
85	(2,779)	(2,495)	(1,360)	(1,259)	(1,263)	(1,361)	(1,486)	(1,913)	(2,222)
86	(2,277)	(1,998)	(1,065)	(674)	(930)	(1,156)	(1,186)	(1,486)	(1,912)
87	(1,966)	(1,486)	(630)	(481)	(590)	(861)	(851)	(1,061)	(1,620)
88	(1,665)	(952)	(73)	(18)	(284)	(333)	(499)	(684)	(1,329)
89	(798)	(299)	439	414	226	99	(140)	(89)	(973)
90	(153)	357	966	899	1,036	899	385	251	(456)
91	417	667	1,461	1,448	1,431	1,480	1,005	668	58
92	927	1,366	1,872	1,961	2,167	2,025	1,745	1,062	691
93	1,612	2,123	2,631	2,754	2,761	2,573	2,066	1,561	1,258
94	2,420	2,751	3,281	3,602	3,436	3,272	2,671	2,256	1,906
95	3,408	3,748	4,179	4,211	4,431	4,152	3,613	3,238	2,629
96	4,854	4,744	5,368	5,744	5,642	4,953	5,092	4,882	3,758
97	6,295	6,257	6,331	7,085	6,767	6,330	5,679	6,997	6,174
98	7,565	7,775	8,282	8,288	8,951	8,376	7,565	6,705	6,136
99	9,767	10,651	10,591	10,738	10,394	10,142	9,730	8,966	8,143
100	15,232	15,611	15,230	15,104	15,072	14,700	14,200	13,279	12,640
Mean	(11,967)	(11,612)	(10,515)	(10,131)	(9,818)	(9,783)	(9,699)	(10,062)	(10,461)
StDev	9,338	9,163	8,945	8,788	8,530	8,327	8,329	8,014	7,930

Appendix Table C-10: Simulated Annualized Income ($M), Cluster A, Fixed Price Policy, Base Price Scenario, Green Soils, Saskatchewan

Percentile	No = (ha)								
No	65	70	75	80	85	90	95	100	105
1	(14,268)	(14,112)	(14,095)	(13,168)	(14,162)	(13,670)	(13,012)	(13,211)	(13,069)
2	(12,995)	(12,147)	(12,139)	(10,756)	(10,291)	(10,226)	(10,359)	(9,698)	(10,911)
3	(9,426)	(8,676)	(8,331)	(7,751)	(7,125)	(7,501)	(8,107)	(7,973)	(7,699)
4	(7,256)	(5,938)	(5,888)	(5,698)	(5,211)	(5,153)	(5,668)	(6,213)	(6,262)
5	(5,577)	(4,926)	(4,368)	(4,301)	(3,668)	(3,203)	(3,636)	(4,051)	(4,995)
6	(4,015)	(4,133)	(3,119)	(2,738)	(2,632)	(1,998)	(2,056)	(2,629)	(3,863)
7	(3,161)	(3,264)	(1,869)	(1,362)	(1,455)	(636)	(1,395)	(1,644)	(2,675)
8	(2,869)	(1,629)	(1,156)	(119)	(168)	81	(491)	(779)	(1,661)
9	(2,103)	(1,151)	(266)	1,162	867	913	365	89	(1,099)
10	(1,611)	(499)	744	1,626	1,387	1,763	1,098	982	(484)
11	(367)	672	1,698	2,613	2,144	2,372	1,993	1,868	136
12	945	1,337	2,299	3,081	2,913	2,998	2,699	1,399	388
13	1,615	1,882	2,985	3,398	3,436	3,449	2,399	1,739	882
14	1,935	2,368	3,472	3,979	4,067	3,799	2,844	2,172	1,288
15	2,529	2,761	4,288	4,398	4,497	3,966	3,291	2,888	1,721
16	3,157	3,288	4,985	4,788	4,968	4,373	3,366	3,068	2,288
17	3,643	3,913	5,399	5,344	5,369	4,567	4,017	3,416	2,778
18	4,284	4,328	5,898	5,642	5,728	4,988	4,388	3,688	3,166
19	4,586	5,196	6,488	6,089	6,091	5,238	4,988	4,138	3,611
20	5,188	5,784	6,996	6,388	6,331	5,397	5,439	4,442	3,888
21	5,972	6,089	6,731	6,677	6,882	5,938	5,732	4,881	4,372
22	6,381	6,436	7,137	7,385	7,311	6,388	5,976	5,338	4,843
23	6,676	6,879	7,436	7,726	7,339	6,843	6,228	5,777	5,388
24	6,988	7,213	7,799	8,044	7,883	7,188	6,738	6,188	5,616
25	7,277	7,588	8,043	8,388	8,152	7,438	6,985	6,511	5,988
26	7,788	8,188	8,427	8,842	8,336	8,016	7,388	6,788	6,288
27	8,195	8,542	8,882	9,288	8,881	8,451	7,538	7,282	6,668
28	8,681	8,866	9,238	9,382	8,988	8,888	8,138	7,583	6,796
29	9,163	9,364	9,716	10,042	9,381	9,288	8,517	8,042	6,988
30	9,639	9,681	10,139	10,388	9,739	9,368	8,986	8,319	7,382
31	9,681	9,988	10,232	10,845	10,083	9,981	9,461	8,888	7,673
32	10,029	10,454	10,888	11,018	10,488	10,431	9,788	9,186	7,988
33	10,452	10,738	11,072	11,328	10,972	10,878	9,862	9,448	8,318
34	10,894	11,089	11,357	11,525	11,334	11,088	10,237	9,888	8,613
35	11,193	11,399	11,687	11,865	11,362	11,321	10,491	10,266	8,899
36	11,518	11,686	12,198	12,268	11,662	11,786	10,845	10,538	9,218
37	11,787	11,938	12,566	12,573	12,188	12,097	11,264	10,977	9,517
38	12,073	12,288	12,966	12,928	12,386	12,432	11,696	11,263	10,032
39	12,329	12,788	13,386	13,382	12,921	12,761	12,073	11,533	10,495
40	12,677	13,011	13,698	13,633	13,269	12,925	12,438	11,732	10,753
41	12,968	13,366	13,867	13,918	13,441	13,188	12,891	11,981	11,063
42	13,376	13,746	14,286	14,131	13,818	13,539	13,288	12,234	11,398
43	13,921	13,988	14,588	14,438	14,146	13,862	13,638	12,527	11,861
44	14,176	14,333	14,817	14,722	14,429	14,168	13,714	12,868	12,082
45	14,486	14,716	15,183	15,084	14,981	14,438	14,029	13,099	12,253
46	14,898	15,076	15,685	15,417	15,282	14,999	14,425	13,488	12,438
47	15,268	15,414	15,931	15,688	15,579	15,117	14,886	13,686	12,623
48	15,536	15,691	16,238	15,988	15,888	15,782	15,238	13,995	12,888
49	15,715	15,912	16,487	16,158	16,239	16,061	15,665	14,415	13,276
50	16,088	16,283	16,832	16,681	16,367	16,386	16,078	14,788	13,687
51	16,376	16,538	17,262	16,966	16,862	16,525	16,398	15,073	14,063
52	16,636	16,967	17,674	17,367	17,168	16,795	16,637	15,319	14,438
53	17,138	17,299	17,738	17,776	17,366	17,018	16,922	15,638	14,782
54	17,391	17,588	18,123	18,223	17,833	17,388	17,268	15,982	14,977
55	17,638	18,088	18,468	18,558	18,087	17,696	17,683	16,388	15,383
56	18,088	18,468	18,752	18,988	18,432	17,988	17,818	16,638	15,567
57	18,638	18,688	19,147	19,238	18,661	18,135	18,116	16,916	15,879
58	18,887	18,888	19,588	19,668	18,886	18,388	18,386	17,166	16,281
59	19,158	19,171	19,962	19,868	19,288	18,768	18,519	17,492	16,566
60	19,427	19,466	20,261	20,211	19,628	19,883	18,736	17,887	16,881
61	19,669	19,813	20,427	20,586	20,087	19,498	19,861	18,319	17,136
62	19,971	20,198	20,668	20,748	20,361	19,736	19,335	18,631	17,436
63	20,176	20,441	20,948	21,068	20,788	20,186	19,672	18,911	17,676
64	20,388	20,716	21,167	21,231	20,982	20,488	19,718	19,221	17,981
65	20,616	20,996	21,362	21,386	21,318	20,663	20,126	19,446	18,282
66	21,172	21,488	21,618	21,799	21,688	20,996	20,388	19,788	18,478
67	21,488	21,766	21,874	22,088	21,752	21,216	20,648	20,132	18,766
68	21,922	22,066	22,078	22,263	22,023	21,438	21,188	20,486	19,479
69	22,258	22,366	22,382	22,538	22,381	21,799	21,328	20,663	19,831
70	22,572	22,776	22,618	22,786	22,588	22,092	21,861	21,061	20,139
71	22,981	22,962	22,957	23,238	22,953	22,358	22,082	21,388	20,432
72	23,386	23,279	23,639	23,535	23,173	22,992	22,384	21,716	20,782
73	23,722	23,729	23,868	23,674	23,615	23,338	22,638	22,142	21,236
74	24,061	24,088	24,473	24,166	24,144	23,714	23,181	22,514	21,619
75	24,317	24,498	24,928	24,336	24,671	24,061	23,476	22,836	22,173
76	24,581	24,987	25,378	25,076	25,188	24,297	23,978	23,088	22,366
77	25,166	25,378	25,629	25,442	25,428	24,736	24,488	23,338	22,689
78	25,666	25,858	26,266	26,077	25,875	25,121	24,798	23,682	23,076
79	26,088	26,447	26,843	26,382	26,425	25,666	25,237	24,168	23,338
80	26,514	26,988	27,378	27,082	26,799	26,086	25,632	24,547	23,726
81	27,166	27,381	27,674	27,488	27,138	26,538	26,287	25,119	24,195
82	28,118	28,186	28,428	28,263	27,868	26,966	26,638	25,636	24,681
83	28,528	28,618	28,968	28,699	28,288	27,328	27,018	26,078	25,388
84	28,888	29,137	29,723	29,268	28,873	27,991	27,588	26,728	25,733
85	29,188	29,621	30,443	29,818	29,286	28,611	28,218	27,197	26,185
86	29,218	29,988	31,118	31,889	29,745	29,382	28,737	28,868	26,882
87	30,831	30,881	31,665	31,668	30,686	29,639	29,313	28,688	27,288
88	31,686	31,831	32,166	32,066	31,231	30,638	29,638	29,196	27,714
89	32,633	32,522	32,743	32,365	32,213	31,468	30,698	29,832	28,387
90	33,038	33,525	33,388	33,162	32,892	32,262	31,536	30,388	28,986
91	34,088	34,191	34,143	33,992	34,628	33,162	32,361	31,138	29,773
92	34,638	35,028	35,252	34,923	34,669	33,966	33,346	31,845	30,338
93	36,221	36,168	36,838	35,976	35,388	34,978	34,861	32,795	31,265
94	37,388	37,366	37,138	37,828	36,438	35,795	36,991	33,998	32,636
95	38,629	38,576	38,165	38,173	37,697	36,968	36,142	34,638	34,132
96	40,518	40,168	39,887	39,937	39,251	38,561	37,845	35,865	35,279
97	42,961	42,331	42,197	42,016	41,388	40,888	39,888	37,387	36,988
98	44,734	45,886	44,881	44,271	43,788	43,884	41,436	39,932	38,788
99	47,695	47,338	48,884	47,486	46,697	45,715	44,615	42,523	42,138
100	55,868	58,987	56,491	56,441	55,816	53,146	52,189	50,188	48,351
Mean	16,616	16,697	17,173	17,289	16,986	16,368	16,013	15,263	14,251
Stdev	13,488	13,382	13,811	12,748	12,331	12,314	12,221	11,938	11,686

Appendix Table G-12: Simulated Annualized Income CDFs, Cluster A, Fixed Price Policy, High Price Scenario, Dream Dells, Saskatchewan

Percentile No	65	70	75	80	NI = 0 (mm) 85	90	95	100	105
1	(1,981)	(877)	(33)	1,869	3,888	3,344	3,879	3,262	(167)
2	6,061	6,739	7,918	7,144	7,666	6,923	6,444	6,988	5,888
3	10,239	10,305	11,884	11,288	12,915	10,668	9,438	9,388	9,892
4	13,136	14,379	13,861	14,197	14,187	14,188	13,847	11,668	11,454
5	15,632	16,276	16,395	15,835	15,257	16,282	15,148	14,288	13,148
6	16,648	17,384	17,868	17,775	17,748	17,725	16,726	16,387	14,384
7	18,115	19,869	19,845	20,058	19,188	19,987	18,277	17,883	16,284
8	19,427	20,682	20,783	21,589	20,868	21,888	19,868	18,883	17,788
9	20,641	21,639	21,834	23,086	22,648	22,881	20,889	20,378	18,512
10	21,386	22,296	23,287	24,271	23,856	22,842	21,343	21,885	19,258
11	22,892	23,283	24,579	25,888	25,766	23,511	22,363	21,516	20,163
12	24,138	24,268	25,652	25,866	26,779	24,642	23,876	22,288	20,867
13	25,086	25,282	26,784	26,523	27,867	25,181	23,486	22,984	21,362
14	26,014	26,237	27,271	27,868	28,399	25,376	24,188	23,813	21,712
15	26,576	26,675	28,012	27,887	27,389	26,227	24,761	23,489	22,178
16	27,088	27,146	28,634	28,456	27,792	26,266	25,188	25,791	22,681
17	28,166	27,988	29,884	28,628	28,228	26,975	25,444	26,227	23,151
18	28,853	29,128	29,489	29,276	28,979	27,321	26,262	25,888	23,588
19	29,528	29,262	29,958	29,774	29,573	27,866	26,888	25,438	24,188
20	30,057	29,867	30,447	30,258	29,882	28,428	27,438	26,844	24,588
21	30,588	30,337	31,056	30,638	30,217	28,898	27,941	26,267	25,051
22	30,972	31,192	31,316	31,114	30,715	29,414	28,388	27,536	25,328
23	31,466	31,626	31,739	31,788	31,052	29,882	28,966	28,296	25,884
24	32,093	32,267	32,166	32,112	31,397	30,371	29,384	28,788	27,328
25	32,632	33,011	32,687	32,612	31,886	31,885	30,238	29,886	27,788
26	33,294	33,487	33,134	33,399	32,343	31,888	30,676	29,625	28,327
27	34,056	34,086	33,623	34,082	33,062	32,426	31,192	30,323	28,648
28	34,863	34,661	34,253	34,545	33,686	33,158	31,432	30,788	29,061
29	35,236	35,376	35,138	35,286	34,868	33,141	32,238	31,296	29,483
30	35,636	35,376	35,644	35,888	34,638	33,832	32,686	31,682	30,068
31	35,999	35,956	36,861	36,386	35,867	34,364	33,138	32,883	30,316
32	36,389	36,688	36,671	36,662	35,514	35,877	33,666	32,649	30,914
33	37,082	37,869	37,142	37,877	36,938	36,615	34,142	33,878	31,268
34	37,679	37,488	37,362	37,566	36,261	36,672	34,498	33,491	31,981
35	38,052	37,991	37,988	37,879	36,881	36,962	34,838	33,982	32,617
36	38,386	38,142	38,282	38,756	37,232	36,264	35,229	34,484	32,313
37	38,668	38,671	38,837	38,444	37,611	36,666	35,717	34,879	32,768
38	39,265	39,183	39,328	39,184	37,991	37,175	36,073	35,168	33,246
39	39,792	39,663	39,853	39,426	38,445	37,488	36,578	35,633	33,769
40	40,133	40,269	40,313	39,751	38,884	38,068	37,194	35,762	34,196
41	40,652	40,629	40,721	40,262	39,166	38,726	37,614	36,299	34,622
42	41,068	41,183	41,081	40,668	39,685	39,188	37,883	36,767	35,228
43	41,334	41,583	41,378	40,962	39,988	39,648	38,448	37,284	35,733
44	41,866	41,867	41,868	41,278	40,692	40,088	39,083	37,881	36,083
45	42,388	42,686	42,286	41,784	41,177	40,366	39,498	37,791	36,446
46	42,798	42,784	42,667	42,252	41,767	40,771	39,973	38,214	36,988
47	43,211	43,088	43,145	42,679	42,263	41,288	40,388	38,686	37,188
48	43,588	43,475	43,644	43,088	42,888	41,776	41,888	38,983	37,643
49	44,057	43,867	44,119	43,682	43,178	42,153	41,386	39,361	37,722
50	44,571	44,288	44,668	44,268	43,648	42,516	41,838	39,799	38,043
51	44,888	44,738	45,063	44,786	43,868	42,977	42,273	40,388	38,378
52	45,188	45,078	45,511	45,088	44,198	43,325	42,653	40,726	38,878
53	45,586	45,345	45,988	45,425	44,586	43,652	42,967	41,085	39,483
54	46,071	46,189	46,211	45,936	44,882	43,973	43,436	41,444	39,988
55	46,386	46,638	46,668	46,368	45,283	44,366	43,832	41,936	40,444
56	46,887	46,766	46,881	46,846	45,698	44,788	44,887	42,319	40,816
57	47,888	47,113	47,421	47,232	46,888	45,881	44,388	42,888	41,147
58	47,346	47,337	47,886	47,686	46,312	45,238	44,898	43,488	41,489
59	48,171	48,015	48,387	48,179	46,895	46,881	45,251	43,798	42,888
60	48,778	48,449	48,836	48,685	47,279	46,365	45,781	44,119	42,675
61	49,869	48,965	49,268	48,952	47,666	46,857	46,085	44,483	43,738
62	49,357	49,226	49,693	49,381	48,257	47,386	46,296	44,885	43,388
63	49,781	49,611	49,856	49,536	48,631	47,577	46,647	45,235	43,887
64	50,011	50,099	50,188	49,842	49,166	47,988	47,188	45,716	44,178
65	50,367	50,473	50,426	50,225	49,586	48,388	47,537	46,133	44,679
66	51,867	50,823	50,731	50,542	49,784	48,513	47,834	46,788	44,884
67	51,348	51,673	50,966	51,086	50,387	49,838	48,338	47,388	45,272
68	51,937	52,138	51,238	51,388	50,586	49,396	48,788	47,661	45,788
69	52,625	52,695	51,676	51,788	51,888	49,888	49,188	48,883	46,288
70	52,788	52,749	52,178	52,862	51,648	50,728	49,686	48,517	46,778
71	53,112	53,888	52,688	52,381	51,988	51,136	50,869	49,882	47,316
72	53,628	53,381	53,386	53,148	52,364	51,778	50,386	49,486	47,982
73	54,282	54,178	53,938	53,838	52,886	52,366	51,888	49,988	48,388
74	54,778	54,648	54,574	53,967	53,441	52,662	51,668	50,338	48,788
75	55,228	55,266	55,286	54,395	54,011	53,135	51,988	50,721	49,886
76	56,888	56,822	55,956	54,868	54,519	53,525	52,443	51,138	50,888
77	56,638	56,637	56,385	55,736	55,168	53,883	53,188	51,483	50,481
78	56,967	57,888	56,662	56,457	55,676	54,273	53,538	52,888	50,798
79	57,716	57,883	57,728	56,799	56,288	54,778	54,117	52,471	51,178
80	58,271	58,377	58,688	57,868	56,662	55,282	54,773	53,138	51,568
81	58,883	58,927	58,888	58,368	57,279	56,888	55,188	53,868	52,114
82	59,388	59,822	59,443	58,888	57,912	56,732	55,778	54,377	52,973
83	60,616	60,388	60,458	59,883	58,599	57,488	56,527	54,988	53,738
84	61,382	61,384	61,143	61,144	59,288	58,286	57,133	55,998	54,291
85	62,128	61,811	62,222	62,838	59,987	58,667	58,888	56,476	54,769
86	63,917	62,361	63,175	62,953	60,687	59,482	58,786	57,425	55,382
87	63,788	63,897	63,866	63,883	61,382	60,858	59,383	58,122	55,983
88	64,687	64,632	64,518	64,122	62,381	61,328	60,388	58,888	56,788
89	65,538	65,626	65,343	64,525	63,741	62,388	61,436	60,888	57,499
90	66,233	66,788	66,282	65,378	65,386	63,648	62,686	60,883	58,413
91	67,888	67,668	66,886	66,614	66,273	64,776	63,368	61,512	59,661
92	69,141	69,865	68,447	68,133	67,878	66,121	64,342	63,188	60,677
93	70,616	70,383	70,188	69,385	68,162	67,383	65,636	64,187	61,842
94	72,287	71,778	70,937	70,629	69,382	68,287	67,436	65,675	63,788
95	73,886	73,681	72,689	72,148	71,339	70,267	68,788	67,873	65,389
96	76,317	75,727	74,381	74,328	73,481	72,884	70,874	68,388	67,888
97	79,386	78,261	78,881	76,838	75,639	74,733	72,256	70,888	68,381
98	82,389	82,257	81,342	80,386	79,382	77,716	75,883	73,788	71,779
99	85,619	85,388	85,891	84,718	82,635	81,888	79,668	77,972	75,488
100	96,342	95,384	93,989	93,787	92,918	92,999	88,314	87,321	84,378
Mean	44,788	44,813	44,868	44,674	43,816	42,938	41,881	40,377	38,888
StDev	17,761	17,488	17,174	16,886	16,638	16,388	16,387	15,983	15,882

Appendix Table C-13: Simulated Annualized Income CDFs, Cluster 9, No Price Intervention, Low Price Scenario, Brown Soils, Saskatchewan

Percentile	Ag = (mm)								
Ag	70	70	75	80	85	90	95	100	105
1	(33,449)	(31,798)	(31,306)	(30,619)	(30,244)	(30,432)	(29,810)	(29,042)	(29,275)
2	(29,534)	(28,072)	(27,790)	(26,772)	(26,734)	(26,390)	(26,164)	(25,367)	(26,931)
3	(26,312)	(27,571)	(25,662)	(25,298)	(24,863)	(24,487)	(24,220)	(23,299)	(23,266)
4	(27,102)	(26,042)	(24,830)	(24,259)	(23,270)	(22,958)	(22,700)	(22,362)	(22,599)
5	(25,772)	(24,852)	(24,027)	(23,166)	(22,542)	(22,042)	(21,804)	(21,436)	(21,643)
6	(24,531)	(23,999)	(23,191)	(21,821)	(21,386)	(21,288)	(21,256)	(21,151)	(20,944)
7	(23,934)	(23,136)	(21,928)	(21,173)	(20,795)	(20,634)	(20,263)	(20,107)	(20,329)
8	(23,075)	(22,792)	(21,351)	(20,451)	(20,157)	(19,679)	(19,651)	(19,445)	(19,907)
9	(22,376)	(21,437)	(20,675)	(20,025)	(19,588)	(18,960)	(18,947)	(18,744)	(19,103)
10	(21,625)	(21,068)	(20,266)	(19,432)	(18,671)	(18,326)	(18,567)	(18,329)	(18,696)
11	(21,121)	(20,575)	(19,602)	(18,914)	(18,266)	(18,083)	(17,987)	(17,732)	(18,284)
12	(20,596)	(20,065)	(19,070)	(18,566)	(17,967)	(17,558)	(17,487)	(17,361)	(17,683)
13	(20,014)	(19,618)	(18,267)	(18,103)	(17,386)	(17,016)	(17,077)	(16,926)	(17,101)
14	(19,567)	(18,876)	(17,885)	(17,593)	(17,088)	(16,619)	(16,584)	(16,488)	(16,767)
15	(19,086)	(18,173)	(17,433)	(17,231)	(16,695)	(16,198)	(16,194)	(16,282)	(16,415)
16	(18,674)	(17,886)	(17,136)	(17,022)	(16,299)	(15,799)	(15,703)	(16,086)	(16,121)
17	(18,197)	(17,444)	(16,717)	(16,518)	(15,821)	(15,417)	(15,536)	(15,263)	(15,797)
18	(17,569)	(17,209)	(16,497)	(16,026)	(15,517)	(15,099)	(15,141)	(14,957)	(15,443)
19	(17,267)	(16,993)	(16,260)	(15,660)	(15,189)	(14,643)	(14,898)	(14,648)	(15,137)
20	(16,964)	(16,761)	(15,935)	(15,436)	(14,797)	(14,326)	(14,807)	(14,388)	(14,873)
21	(16,625)	(16,457)	(15,668)	(15,098)	(14,525)	(14,218)	(14,284)	(14,088)	(14,585)
22	(16,377)	(15,994)	(15,133)	(14,752)	(14,145)	(13,884)	(13,894)	(13,891)	(14,230)
23	(16,094)	(15,561)	(14,760)	(14,374)	(13,822)	(13,599)	(13,666)	(13,399)	(13,838)
24	(15,696)	(15,144)	(14,370)	(14,088)	(13,599)	(13,276)	(13,328)	(13,277)	(13,583)
25	(15,338)	(14,873)	(13,970)	(13,693)	(13,099)	(12,860)	(13,130)	(13,102)	(13,272)
26	(14,926)	(14,583)	(13,527)	(13,264)	(12,773)	(12,634)	(12,838)	(12,915)	(12,961)
27	(14,688)	(14,371)	(13,256)	(12,963)	(12,660)	(12,451)	(12,574)	(12,687)	(12,771)
28	(14,314)	(14,081)	(12,991)	(12,688)	(12,272)	(12,148)	(12,339)	(12,176)	(12,533)
29	(14,073)	(13,796)	(12,562)	(12,345)	(12,099)	(11,890)	(12,103)	(11,906)	(12,232)
30	(13,826)	(13,501)	(12,349)	(12,084)	(11,788)	(11,677)	(11,838)	(11,666)	(11,915)
31	(13,456)	(13,230)	(11,982)	(11,735)	(11,436)	(11,435)	(11,636)	(11,363)	(11,701)
32	(12,944)	(12,933)	(11,611)	(11,479)	(11,422)	(11,147)	(11,351)	(11,215)	(11,415)
33	(12,758)	(12,594)	(11,351)	(11,238)	(11,167)	(10,910)	(11,002)	(10,926)	(11,138)
34	(12,483)	(12,223)	(11,155)	(11,071)	(10,877)	(10,631)	(10,791)	(10,636)	(10,948)
35	(12,065)	(11,767)	(10,795)	(10,694)	(10,577)	(10,372)	(10,544)	(10,449)	(10,776)
36	(11,863)	(11,479)	(10,477)	(10,431)	(10,227)	(10,125)	(10,329)	(10,251)	(10,567)
37	(11,620)	(10,962)	(10,215)	(10,113)	(9,901)	(9,869)	(10,113)	(10,126)	(10,357)
38	(11,422)	(10,665)	(9,872)	(9,797)	(9,536)	(9,469)	(9,782)	(9,952)	(10,105)
39	(11,020)	(10,473)	(9,497)	(9,444)	(9,230)	(9,329)	(9,356)	(9,777)	(9,925)
40	(10,734)	(10,114)	(9,222)	(9,058)	(8,836)	(8,957)	(9,125)	(9,582)	(9,629)
41	(10,433)	(9,765)	(8,925)	(8,786)	(8,658)	(8,677)	(8,931)	(9,162)	(9,263)
42	(10,177)	(9,321)	(8,680)	(8,371)	(8,372)	(8,293)	(8,622)	(8,931)	(9,066)
43	(9,885)	(9,035)	(8,355)	(8,132)	(8,125)	(8,015)	(8,366)	(8,787)	(8,962)
44	(9,562)	(8,784)	(8,123)	(7,919)	(7,810)	(7,650)	(8,068)	(8,374)	(8,648)
45	(9,387)	(8,566)	(7,877)	(7,714)	(7,660)	(7,361)	(7,842)	(7,984)	(8,339)
46	(8,987)	(8,260)	(7,574)	(7,374)	(7,199)	(7,082)	(7,342)	(7,638)	(8,027)
47	(8,593)	(7,979)	(7,262)	(7,188)	(6,932)	(6,822)	(7,019)	(7,163)	(7,648)
48	(8,274)	(7,617)	(7,083)	(6,914)	(6,698)	(6,554)	(6,718)	(6,951)	(7,372)
49	(8,029)	(7,422)	(6,740)	(6,599)	(6,456)	(6,358)	(6,601)	(6,725)	(7,013)
50	(7,691)	(7,088)	(6,516)	(6,425)	(6,231)	(6,119)	(6,181)	(6,536)	(6,736)
51	(7,519)	(7,196)	(6,271)	(6,210)	(5,981)	(5,864)	(5,951)	(6,083)	(6,539)
52	(7,335)	(6,961)	(6,095)	(5,992)	(5,728)	(5,563)	(5,746)	(5,912)	(6,264)
53	(7,128)	(6,759)	(5,822)	(5,792)	(5,567)	(5,369)	(5,538)	(5,734)	(6,001)
54	(6,872)	(6,519)	(5,631)	(5,561)	(5,286)	(5,168)	(5,329)	(5,566)	(5,717)
55	(6,679)	(6,168)	(5,417)	(5,383)	(4,988)	(4,962)	(5,109)	(5,311)	(5,562)
56	(6,498)	(5,845)	(5,076)	(5,053)	(4,777)	(4,714)	(4,843)	(5,128)	(5,395)
57	(6,062)	(5,438)	(4,888)	(4,673)	(4,364)	(4,474)	(4,699)	(4,836)	(5,065)
58	(5,588)	(5,053)	(4,559)	(4,292)	(4,024)	(4,261)	(4,419)	(4,645)	(4,836)
59	(5,307)	(4,791)	(4,286)	(3,943)	(3,644)	(4,079)	(4,164)	(4,366)	(4,392)
60	(5,107)	(4,539)	(3,948)	(3,657)	(3,369)	(3,803)	(3,921)	(4,137)	(4,149)
61	(4,901)	(4,235)	(3,527)	(3,329)	(3,044)	(3,474)	(3,561)	(3,625)	(3,898)
62	(4,567)	(3,971)	(3,269)	(3,042)	(2,784)	(3,138)	(3,265)	(3,509)	(3,781)
63	(4,199)	(3,717)	(3,016)	(2,801)	(2,543)	(2,873)	(3,156)	(3,305)	(3,427)
64	(3,990)	(3,484)	(2,733)	(2,601)	(2,349)	(2,684)	(2,843)	(3,045)	(3,113)
65	(3,799)	(3,075)	(2,436)	(1,977)	(1,974)	(2,264)	(2,472)	(2,644)	(3,033)
66	(3,481)	(2,814)	(2,198)	(1,898)	(1,647)	(2,051)	(2,074)	(2,333)	(2,668)
67	(2,944)	(2,439)	(1,981)	(1,563)	(1,312)	(1,714)	(1,730)	(2,019)	(2,252)
68	(2,646)	(2,066)	(1,388)	(1,148)	(1,049)	(1,298)	(1,393)	(1,738)	(2,068)
69	(2,383)	(1,801)	(998)	(818)	(743)	(998)	(999)	(1,388)	(1,888)
70	(1,997)	(1,318)	(726)	(523)	(388)	(557)	(685)	(1,086)	(1,382)
71	(1,682)	(1,274)	(433)	(128)	67	119	(99)	(435)	(1,146)
72	(1,399)	(968)	(147)	216	474	513	363	(417)	(738)
73	(911)	(661)	48	638	968	774	662	(21)	(399)
74	(568)	(149)	289	1,018	1,255	1,051	955	443	(92)
75	(268)	328	599	1,214	1,484	1,328	1,481	788	357
76	181	775	988	1,438	1,847	1,662	1,788	1,216	642
77	613	1,063	1,362	1,874	2,270	2,196	2,166	1,678	1,028
78	988	1,384	1,788	2,322	2,642	2,659	2,573	2,076	1,536
79	1,438	1,835	2,273	2,836	3,094	3,053	2,953	2,474	1,913
80	1,841	2,312	2,779	3,389	3,688	3,684	3,388	2,731	2,443
81	2,351	2,695	3,331	3,791	3,988	4,055	3,681	3,219	2,943
82	2,787	3,106	3,798	3,996	4,388	4,385	4,131	3,568	3,384
83	3,087	3,378	4,206	4,362	4,525	4,694	4,352	3,841	3,618
84	3,386	3,650	4,601	4,777	5,068	5,177	4,944	4,482	3,968
85	3,982	4,201	4,979	5,223	5,470	5,525	5,489	5,138	4,738
86	4,321	4,636	5,395	5,688	5,888	5,944	5,845	5,666	5,063
87	4,997	5,263	6,010	6,435	6,351	6,439	6,539	6,262	5,526
88	5,773	6,088	6,532	7,221	7,064	6,882	6,997	6,151	5,998
89	6,265	6,533	7,395	7,633	7,663	7,388	7,560	6,723	6,384
90	6,953	7,147	8,084	8,312	8,082	7,879	8,122	7,414	6,918
91	7,847	7,723	8,430	8,819	8,668	8,477	8,647	8,143	7,475
92	7,992	8,287	9,126	9,278	9,368	9,278	9,484	8,728	8,098
93	9,004	9,102	10,004	10,057	10,228	10,084	10,022	9,604	8,734
94	9,969	9,852	11,009	10,630	10,868	10,869	10,857	10,191	9,678
95	10,888	11,270	11,845	11,844	11,796	11,672	11,695	11,088	10,448
96	11,911	12,674	13,135	13,781	12,814	12,560	12,884	12,025	11,437
97	13,485	14,369	14,446	14,738	14,753	13,547	13,852	12,888	12,688
98	15,648	16,773	16,581	16,446	15,675	15,583	15,889	14,238	14,738
99	19,515	19,844	19,879	20,223	20,327	20,067	19,886	17,791	17,661
100	25,315	25,232	25,187	25,044	25,141	24,515	24,226	23,135	22,643
Mean	(7,350)	(6,858)	(6,079)	(5,762)	(5,488)	(5,661)	(5,581)	(5,788)	(6,064)
Stdev	11,141	11,043	10,891	10,784	10,593	10,436	10,327	10,062	9,954

Appendix Table C-14: Simulated Annualized Income ($M's, Cluster 9, No Price Intervention, Base Price Scenario, Brown Soils, Saskatchewan

Percentile No	60	70	75	80	No = (mu) 85	90	95	100	105
1	(19,676)	(19,426)	(19,360)	(18,298)	(16,195)	(16,373)	(15,316)	(14,995)	(14,065)
2	(14,168)	(13,386)	(12,135)	(12,383)	(11,322)	(12,071)	(11,887)	(11,660)	(11,012)
3	(10,976)	(11,060)	(10,695)	(9,929)	(9,917)	(9,610)	(9,466)	(9,016)	(9,530)
4	(9,366)	(9,196)	(8,628)	(8,020)	(7,851)	(7,382)	(7,519)	(7,920)	(8,186)
5	(8,026)	(7,679)	(7,169)	(6,257)	(5,799)	(5,230)	(6,065)	(6,620)	(6,867)
6	(6,980)	(6,256)	(6,129)	(5,440)	(6,610)	(6,266)	(6,369)	(6,056)	(5,561)
7	(5,777)	(5,226)	(4,806)	(5,966)	(3,881)	(3,575)	(3,361)	(3,075)	(4,515)
8	(4,746)	(4,510)	(3,760)	(2,927)	(2,822)	(2,663)	(2,660)	(2,966)	(3,966)
9	(3,866)	(3,696)	(2,699)	(1,806)	(1,696)	(1,736)	(2,001)	(2,306)	(3,414)
10	(2,970)	(2,900)	(1,900)	(951)	(958)	(911)	(1,658)	(1,697)	(2,760)
11	(2,288)	(1,678)	(391)	(326)	(356)	(352)	(1,888)	(1,279)	(1,862)
12	(1,232)	(917)	165	143	464	239	(678)	(898)	(1,251)
13	(349)	32	709	989	1,232	888	371	(96)	(372)
14	382	886	1,381	1,229	1,958	1,461	1,386	886	382
15	973	1,488	1,862	1,886	2,888	2,186	1,976	1,619	886
16	1,675	1,749	2,365	2,763	3,466	2,783	2,211	2,069	1,388
17	2,263	2,239	3,003	3,366	3,881	3,298	3,888	2,498	1,922
18	2,746	2,861	3,616	4,469	4,619	3,754	3,388	3,092	2,457
19	3,888	3,388	4,311	4,776	4,888	4,175	4,195	3,488	2,888
20	3,497	3,886	4,895	5,393	5,154	4,562	4,728	4,087	3,228
21	4,125	4,527	5,482	5,893	5,388	5,139	5,866	4,728	3,868
22	4,682	5,063	5,976	6,389	6,015	5,728	5,478	5,281	4,366
23	5,168	5,728	6,668	6,736	6,536	6,331	5,912	5,729	4,977
24	5,676	6,166	6,998	7,088	6,985	6,662	6,443	6,087	5,299
25	6,176	6,716	7,398	7,325	7,467	7,088	6,838	6,461	5,788
26	6,989	7,367	8,091	8,038	7,862	7,636	7,115	6,732	6,118
27	7,612	7,886	8,728	8,788	8,394	8,225	7,881	7,114	6,363
28	7,816	8,277	9,868	9,254	8,838	8,388	8,888	7,382	6,671
29	8,291	8,775	9,668	9,686	9,128	8,898	8,668	8,178	7,188
30	8,888	9,388	9,888	10,011	9,616	9,344	9,038	8,588	7,686
31	9,512	9,886	10,488	10,366	9,881	9,678	9,167	8,722	8,087
32	9,979	10,885	10,998	10,751	10,298	9,861	9,383	9,168	8,486
33	10,312	10,332	11,391	11,881	10,666	10,366	9,738	9,685	8,888
34	10,865	11,889	11,575	11,447	10,861	10,539	10,186	9,776	9,864
35	11,143	11,459	11,976	11,838	11,329	11,881	10,397	10,852	9,369
36	11,388	11,864	12,153	12,229	11,762	11,481	10,996	10,389	9,766
37	11,886	12,158	12,537	12,539	12,238	12,181	11,389	10,677	10,189
38	12,167	12,425	12,853	12,873	12,646	12,488	11,874	11,815	10,327
39	12,578	12,866	13,197	13,389	13,867	12,636	12,156	11,398	10,395
40	12,972	13,266	13,668	13,685	13,357	12,967	12,469	11,677	10,765
41	13,428	13,863	13,938	14,211	13,636	13,612	12,721	11,962	11,186
42	13,973	14,188	14,357	14,436	13,978	13,781	12,918	12,288	11,548
43	14,238	14,386	14,686	14,661	14,687	14,852	13,165	12,587	11,836
44	14,657	14,723	14,987	14,968	14,779	14,435	13,376	12,918	12,179
45	14,918	15,056	15,258	15,271	15,087	14,791	13,938	13,233	12,646
46	15,283	15,399	15,638	15,588	15,268	15,136	14,315	13,619	12,988
47	15,588	15,813	16,076	15,917	15,766	15,433	14,788	13,964	13,449
48	16,375	16,386	16,364	16,158	16,167	15,633	15,084	14,393	13,871
49	16,579	16,889	16,618	16,461	16,477	15,888	15,376	14,766	14,281
50	16,935	17,288	16,883	16,861	16,788	16,244	15,595	15,188	14,688
51	17,215	17,596	17,388	17,262	16,916	16,384	15,817	15,443	14,988
52	17,665	17,886	17,638	18,889	17,123	16,968	16,017	15,664	15,283
53	17,726	18,232	18,148	18,326	17,488	17,179	16,211	15,886	15,688
54	18,028	18,535	18,445	18,644	17,978	17,458	16,638	16,188	15,989
55	18,398	18,779	18,579	19,888	18,333	17,886	17,862	17,886	16,179
56	18,886	19,381	19,282	19,668	18,384	18,238	17,475	17,439	16,789
57	19,388	19,621	19,883	19,914	19,137	18,688	17,882	17,726	17,111
58	19,921	20,073	20,446	20,295	19,729	19,131	18,222	18,131	17,498
59	20,245	20,484	20,888	20,732	20,168	19,393	18,882	18,387	17,883
60	20,643	20,888	21,178	21,012	20,548	20,025	19,268	18,674	18,317
61	20,962	21,287	21,533	21,466	21,081	20,484	19,812	19,228	18,686
62	21,296	21,749	21,966	22,085	21,595	20,969	20,439	19,717	19,062
63	21,778	22,075	22,374	22,343	22,086	21,394	20,866	20,348	19,251
64	21,969	22,379	22,781	22,536	22,336	21,784	21,436	20,832	19,519
65	22,298	22,742	23,174	22,982	22,647	22,432	21,888	21,235	20,832
66	22,661	23,223	23,515	23,383	23,027	22,968	22,139	21,366	20,519
67	23,398	23,661	23,996	23,778	23,473	23,288	22,661	22,063	20,932
68	23,935	24,188	24,463	24,015	24,087	23,558	22,999	22,436	21,137
69	24,478	24,788	24,866	24,382	24,632	23,791	23,383	22,618	21,388
70	24,844	25,091	25,388	24,898	24,988	24,235	23,686	23,125	21,797
71	25,281	25,613	25,912	25,271	25,318	24,761	23,963	23,435	22,188
72	25,663	25,987	26,316	25,697	25,783	25,171	24,382	23,798	22,378
73	26,292	26,265	26,678	26,379	26,292	25,538	25,866	24,126	22,756
74	26,682	26,632	27,085	26,687	26,784	26,073	25,439	24,369	23,166
75	27,287	27,166	27,578	27,159	27,266	26,779	26,119	24,868	23,584
76	27,916	27,866	27,928	27,578	27,713	27,286	26,661	25,328	24,086
77	28,226	28,276	28,288	27,988	28,086	27,772	25,676	24,673
78	28,766	28,883	28,788	28,453	28,391	28,851	27,392	26,182	25,187
79	29,454	29,288	29,167	29,158	28,791	28,385	27,891	26,615	25,788
80	30,467	29,989	29,576	29,883	29,388	28,995	28,226	27,186	26,377
81	30,653	30,728	30,613	30,566	29,976	29,419	28,457	27,888	26,968
82	31,176	31,233	31,253	31,316	30,538	29,868	29,883	28,186	27,383
83	31,661	31,917	31,625	31,862	31,288	30,362	29,573	28,783	28,025
84	32,385	32,738	32,464	32,266	31,883	31,882	30,437	29,373	28,756
85	33,171	33,368	33,114	32,885	32,791	31,888	31,138	30,166	29,326
86	33,779	34,016	33,885	33,633	33,266	32,686	31,768	30,838	29,879
87	34,189	34,688	34,866	34,717	33,988	33,251	32,858	31,713	30,317
88	35,467	35,488	35,917	35,998	34,939	34,255	33,916	32,648	31,888
89	36,728	36,788	36,612	36,841	35,662	35,115	34,498	33,432	31,783
90	37,776	37,885	37,684	37,688	36,173	36,884	35,238	34,248	32,673
91	38,819	38,988	38,636	38,587	37,182	37,451	36,874	34,921	33,871
92	39,868	39,772	39,483	39,176	38,287	37,372	36,883	35,995	35,086
93	40,919	40,988	40,218	40,167	39,338	38,165	38,199	36,821	36,167
94	41,972	42,063	41,866	41,239	40,395	40,174	38,978	37,744	37,866
95	43,189	43,888	42,867	42,158	41,971	40,921	39,575	38,683	38,191
96	44,275	44,889	44,284	44,398	43,115	42,286	41,718	39,829	39,286
97	45,251	45,682	45,882	45,382	45,223	44,239	43,516	42,162	41,381
98	46,767	46,597	46,378	46,886	47,788	46,882	46,527	45,888	45,916
99	56,888	56,143	53,199	53,714	53,436	53,474	52,567	50,439	47,914
100	67,116	66,698	64,329	64,136	63,881	61,263	59,875	57,474	56,778
Mean	17,477	17,782	17,990	18,035	17,765	17,366	16,885	16,158	15,386
Stdev	15,677	15,576	15,177	15,011	14,643	14,499	14,285	13,889	13,721

Appendix Table D-15: Simulated annualized income CDFs, Cluster 8, No Price Intervention, High Price Scenario, Brown Soils, Saskatchewan

Percentile	No = (ha)								
%	65	70	75	80	85	90	95	100	105
1	(4,984)	(3,998)	(3,880)	(2,353)	(2,729)	(4,230)	(3,253)	(2,357)	(3,015)
2	3,352	4,194	4,805	4,739	4,381	4,799	4,132	2,783	2,621
3	6,651	6,685	7,913	8,145	7,881	7,636	7,116	6,443	5,649
4	8,343	8,861	9,853	10,161	9,778	9,648	8,739	7,643	6,933
5	10,239	10,781	11,391	11,948	11,774	10,856	10,265	9,573	8,112
6	11,987	12,641	13,104	13,179	13,115	12,199	11,714	11,226	9,721
7	12,994	13,439	14,437	14,269	14,121	13,648	12,744	12,494	11,567
8	14,492	14,651	14,938	15,685	15,213	14,744	13,944	13,597	12,623
9	15,618	15,763	15,815	16,361	16,206	16,121	14,861	14,998	13,622
10	16,361	17,125	16,958	17,608	17,477	17,086	15,833	15,626	14,775
11	17,447	18,401	18,329	18,615	18,681	17,792	16,965	16,401	15,650
12	18,318	19,136	19,427	19,146	19,219	18,638	17,832	16,998	15,912
13	18,976	19,677	20,051	20,263	19,779	19,217	18,628	17,668	16,562
14	19,694	20,306	20,701	21,068	20,679	20,229	19,517	18,398	17,397
15	20,364	21,208	21,411	21,648	21,183	21,017	20,198	19,033	18,063
16	21,113	21,813	21,867	22,265	21,975	21,589	20,811	19,678	18,731
17	22,199	22,672	22,353	22,868	22,699	22,259	21,312	20,088	19,674
18	22,876	23,119	22,995	23,644	23,273	23,067	21,828	20,657	20,173
19	23,644	23,672	23,549	24,263	23,916	23,602	22,738	21,601	20,901
20	24,042	24,538	24,438	24,962	24,643	24,098	23,145	21,649	21,398
21	24,577	24,946	25,379	25,565	25,321	24,784	23,657	22,436	21,819
22	25,114	25,538	26,084	26,221	26,169	25,252	24,288	23,267	22,313
23	26,784	26,343	26,537	27,211	26,744	26,085	24,743	23,761	22,698
24	27,397	27,153	27,360	27,744	27,298	26,743	25,536	24,331	23,344
25	27,896	27,649	28,052	28,264	27,661	27,232	26,089	24,674	24,001
26	28,548	28,283	28,614	28,889	28,561	27,928	26,744	25,280	24,499
27	29,072	29,095	28,951	29,236	28,619	27,776	27,231	26,113	25,067
28	29,628	29,637	29,767	29,801	29,051	28,326	27,752	26,618	25,658
29	30,457	30,372	30,293	30,399	29,743	29,057	28,177	27,090	26,644
30	31,043	31,033	30,979	31,093	30,384	29,597	28,792	27,788	26,917
31	31,501	31,756	31,937	31,700	30,634	29,143	29,665	28,619	27,605
32	32,032	32,495	32,806	32,329	31,179	30,353	29,866	28,861	27,976
33	32,387	33,164	33,913	33,037	31,700	31,088	30,212	29,661	28,569
34	32,819	33,809	34,544	33,761	32,368	31,652	30,613	30,056	28,998
35	33,343	34,222	35,098	34,219	33,069	32,322	31,358	30,560	29,144
36	33,961	34,743	35,561	34,614	33,688	32,966	32,015	31,011	29,544
37	34,530	35,234	36,107	35,285	34,371	33,608	32,520	31,771	30,378
38	35,110	35,673	36,647	35,730	34,760	34,184	32,933	32,331	31,053
39	35,436	36,050	36,869	36,144	35,396	34,964	33,384	32,719	31,475
40	35,835	36,424	37,163	36,544	35,888	35,322	33,933	33,062	31,904
41	36,446	37,141	37,670	37,088	36,269	35,625	34,418	33,611	32,343
42	37,014	37,583	38,052	37,544	36,653	35,899	34,857	34,206	32,907
43	37,469	37,928	38,472	37,931	37,144	36,406	35,236	34,732	33,595
44	38,264	38,382	39,021	38,210	37,652	36,993	35,711	35,141	33,927
45	38,864	38,718	39,566	38,647	37,953	37,360	36,514	35,667	34,314
46	39,288	39,054	39,940	39,218	38,574	37,754	37,109	36,072	34,904
47	39,681	39,370	40,344	39,736	38,318	38,039	37,636	36,691	35,238
48	39,919	39,737	40,709	40,188	38,744	38,318	37,851	36,982	35,562
49	40,731	40,281	41,051	40,644	39,243	38,644	38,284	37,617	35,988
50	41,355	41,083	41,630	41,072	39,774	39,066	38,573	37,739	36,288
51	41,847	41,601	41,709	41,251	40,373	39,661	39,149	38,037	36,583
52	42,423	41,936	42,182	41,737	40,997	39,968	39,565	38,536	36,928
53	42,820	42,379	42,574	42,324	41,780	40,524	40,023	39,045	37,328
54	43,312	42,911	42,999	42,762	42,082	40,877	40,317	39,344	37,730
55	43,865	43,360	43,313	43,195	42,367	41,451	40,770	39,967	38,271
56	44,195	43,960	43,674	43,748	42,898	42,042	41,251	40,377	38,644
57	44,586	44,388	44,161	44,226	43,306	42,674	41,770	40,712	39,237
58	44,995	44,693	44,760	44,643	43,779	43,284	42,262	41,014	39,722
59	45,281	45,018	45,332	45,284	44,248	43,768	42,637	41,349	40,256
60	45,691	45,366	45,922	45,644	44,693	44,196	43,099	42,197	40,743
61	46,128	46,235	46,613	46,222	45,178	44,619	43,396	42,782	41,234
62	46,747	46,653	47,164	46,648	45,950	44,985	43,888	42,736	41,575
63	47,622	47,236	47,547	47,066	46,681	45,349	44,435	43,116	41,976
64	48,038	47,810	48,100	47,698	46,711	45,977	44,833	43,567	42,644
65	48,567	48,495	48,735	47,938	47,111	46,231	45,394	44,110	42,778
66	49,366	48,909	49,221	48,488	47,647	46,776	45,821	44,638	43,345
67	50,084	49,538	49,743	49,088	48,298	47,458	46,329	45,091	43,849
68	50,365	50,052	50,188	49,674	48,931	47,980	46,943	45,516	44,499
69	50,757	50,784	50,513	50,378	49,648	48,371	47,586	45,925	44,980
70	51,084	51,078	51,036	50,870	49,989	48,863	48,232	46,295	45,194
71	51,612	51,392	51,438	51,336	50,566	49,378	48,749	46,923	45,698
72	52,366	52,249	51,963	51,829	51,256	49,988	49,363	47,787	46,425
73	52,988	52,875	52,671	52,390	51,635	50,678	50,136	48,278	47,101
74	53,535	53,365	52,979	52,843	52,139	51,384	50,999	48,960	47,644
75	54,158	53,779	53,644	53,404	52,640	52,142	51,581	49,793	48,134
76	55,092	54,472	54,369	53,933	53,291	52,742	52,282	50,537	48,609
77	55,827	55,335	55,100	54,656	53,939	53,376	52,938	51,086	49,129
78	56,588	56,232	55,761	55,762	54,357	53,778	53,422	51,948	49,883
79	57,517	57,237	56,375	56,784	55,039	54,226	53,963	52,731	50,251
80	58,099	57,919	57,528	56,978	55,645	54,813	54,636	53,265	51,010
81	58,588	58,414	57,761	57,536	56,386	55,661	55,136	53,680	51,965
82	59,291	59,060	58,702	58,293	57,498	56,335	55,773	54,354	52,906
83	60,073	59,799	59,594	59,167	58,188	57,662	56,357	54,998	53,757
84	60,978	60,606	60,449	59,936	59,310	58,131	57,264	55,639	54,286
85	62,044	61,626	61,488	60,616	60,476	59,256	58,263	56,588	54,904
86	62,719	62,472	62,346	61,622	61,618	59,847	59,158	57,653	55,615
87	63,478	63,441	63,390	62,796	62,991	61,193	59,870	58,399	56,282
88	64,708	64,560	64,057	63,710	63,306	61,921	60,608	59,266	57,033
89	66,013	65,447	65,316	64,569	64,406	63,206	61,990	60,106	57,979
90	67,167	66,783	66,438	66,297	65,436	64,630	63,522	60,992	59,255
91	68,822	68,395	67,995	67,328	66,740	66,220	65,012	62,678	60,696
92	70,079	70,011	70,013	69,285	68,311	68,158	66,876	64,476	62,368
93	71,588	71,766	72,068	71,363	70,702	69,677	68,679	66,312	64,293
94	72,778	73,755	73,523	73,167	72,182	71,888	69,875	67,561	66,072
95	74,979	75,713	75,866	75,440	73,680	72,227	71,723	69,975	68,484
96	77,675	77,997	77,684	77,144	76,183	74,292	74,292	71,988	70,330
97	80,288	79,965	80,090	79,613	78,944	77,737	75,940	74,686	71,998
98	83,297	84,232	82,297	82,690	81,315	80,189	78,062	77,388	75,618
99	87,012	87,878	87,137	86,513	85,663	84,288	83,328	81,562	80,183
100	101,673	101,019	98,066	97,323	97,115	96,282	92,998	89,880	88,287
Mean	42,086	42,071	42,196	41,991	41,267	40,511	39,621	38,445	37,125
StDev	19,798	19,685	19,269	19,086	18,940	18,693	18,486	18,184	17,799

Appendix Table C-16: Simulated Annualized Income Diffs, Cluster 8, Truncated Prices, Low Price Scenario, Brown Soils, Saskatchewan

Percentile	Mu + (mu)								
Mu	65	70	75	80	85	90	95	100	105
1	(30,310)	(29,706)	(28,726)	(27,660)	(26,643)	(26,263)	(26,017)	(25,929)	(25,856)
2	(27,171)	(26,281)	(25,619)	(24,920)	(23,311)	(22,642)	(22,493)	(22,560)	(22,601)
3	(24,644)	(24,133)	(22,946)	(22,009)	(21,270)	(20,649)	(20,786)	(20,696)	(21,125)
4	(23,274)	(22,795)	(21,696)	(21,121)	(20,171)	(19,706)	(19,523)	(19,389)	(19,495)
5	(22,621)	(21,990)	(20,990)	(20,031)	(19,128)	(18,956)	(18,566)	(18,618)	(18,760)
6	(21,843)	(21,199)	(20,223)	(19,211)	(18,960)	(18,193)	(18,128)	(18,099)	(18,060)
7	(21,258)	(20,619)	(19,311)	(18,691)	(18,345)	(17,860)	(17,518)	(17,433)	(17,496)
8	(20,560)	(19,765)	(18,666)	(18,056)	(17,996)	(17,258)	(17,047)	(16,992)	(17,010)
9	(20,093)	(19,165)	(18,086)	(17,606)	(17,378)	(16,952)	(16,343)	(16,491)	(16,629)
10	(19,773)	(18,687)	(17,638)	(17,121)	(16,966)	(16,638)	(15,923)	(15,872)	(16,316)
11	(19,387)	(18,087)	(17,053)	(16,652)	(16,475)	(15,862)	(15,395)	(15,416)	(15,831)
12	(18,327)	(17,667)	(16,712)	(16,135)	(15,827)	(15,260)	(14,996)	(15,060)	(15,595)
13	(17,859)	(17,079)	(16,299)	(15,799)	(15,223)	(14,876)	(14,760)	(14,982)	(15,266)
14	(17,648)	(16,667)	(15,884)	(15,310)	(14,983)	(14,680)	(14,442)	(14,630)	(15,067)
15	(16,992)	(16,323)	(15,681)	(14,926)	(14,397)	(14,111)	(14,179)	(14,260)	(14,823)
16	(16,534)	(16,007)	(15,153)	(14,660)	(14,051)	(13,809)	(14,029)	(14,096)	(14,586)
17	(16,201)	(15,737)	(14,807)	(14,177)	(13,732)	(13,661)	(13,759)	(13,918)	(14,267)
18	(15,908)	(15,221)	(14,452)	(13,889)	(13,537)	(13,231)	(13,663)	(13,761)	(14,082)
19	(15,618)	(14,736)	(14,160)	(13,760)	(13,480)	(13,056)	(13,305)	(13,430)	(13,992)
20	(15,218)	(14,426)	(13,864)	(13,528)	(13,166)	(12,865)	(12,964)	(13,160)	(13,692)
21	(14,815)	(14,191)	(13,562)	(13,151)	(12,931)	(12,643)	(12,868)	(12,858)	(13,166)
22	(14,553)	(13,958)	(13,177)	(12,860)	(12,646)	(12,215)	(12,387)	(12,580)	(12,833)
23	(14,230)	(13,644)	(12,910)	(12,640)	(12,285)	(12,012)	(12,208)	(12,193)	(12,590)
24	(14,045)	(13,263)	(12,681)	(12,321)	(11,889)	(11,699)	(11,969)	(11,896)	(12,268)
25	(13,767)	(12,881)	(12,437)	(11,967)	(11,689)	(11,443)	(11,888)	(11,661)	(12,016)
26	(13,422)	(12,711)	(12,288)	(11,677)	(11,568)	(11,163)	(11,568)	(11,617)	(11,786)
27	(13,151)	(12,528)	(11,841)	(11,326)	(10,915)	(10,878)	(11,216)	(11,223)	(11,696)
28	(12,957)	(12,333)	(11,681)	(10,973)	(10,679)	(10,731)	(10,881)	(10,951)	(11,260)
29	(12,742)	(12,111)	(11,197)	(10,755)	(10,376)	(10,317)	(10,658)	(10,682)	(11,027)
30	(12,462)	(11,830)	(11,023)	(10,452)	(10,176)	(10,330)	(10,384)	(10,382)	(10,761)
31	(12,196)	(11,582)	(10,752)	(10,257)	(9,961)	(10,112)	(10,176)	(10,085)	(10,360)
32	(11,988)	(11,362)	(10,357)	(10,069)	(9,789)	(9,932)	(9,663)	(9,855)	(10,332)
33	(11,658)	(11,093)	(10,006)	(9,838)	(9,618)	(9,664)	(9,576)	(9,631)	(10,079)
34	(11,513)	(10,903)	(9,882)	(9,551)	(9,211)	(9,381)	(9,255)	(9,606)	(9,868)
35	(11,288)	(10,669)	(9,626)	(9,262)	(8,971)	(9,167)	(9,063)	(9,222)	(9,596)
36	(11,080)	(10,444)	(9,251)	(9,012)	(8,799)	(8,835)	(8,736)	(8,976)	(9,338)
37	(10,726)	(10,175)	(9,199)	(8,788)	(8,562)	(8,647)	(8,554)	(8,721)	(9,086)
38	(10,672)	(9,961)	(8,998)	(8,567)	(8,370)	(8,398)	(8,391)	(8,505)	(8,901)
39	(10,166)	(9,732)	(8,648)	(8,246)	(8,055)	(8,205)	(8,187)	(8,292)	(8,732)
40	(9,848)	(9,518)	(8,499)	(7,906)	(7,777)	(7,936)	(7,949)	(8,105)	(8,440)
41	(9,655)	(9,266)	(8,175)	(7,729)	(7,606)	(7,697)	(7,697)	(7,912)	(8,250)
42	(9,360)	(8,927)	(7,880)	(7,495)	(7,239)	(7,471)	(7,440)	(7,667)	(8,098)
43	(9,128)	(8,722)	(7,598)	(7,313)	(6,998)	(7,206)	(7,277)	(7,458)	(7,897)
44	(8,866)	(8,498)	(7,377)	(7,083)	(6,879)	(7,082)	(7,144)	(7,266)	(7,626)
45	(8,663)	(8,213)	(7,218)	(6,862)	(6,581)	(6,827)	(6,916)	(7,102)	(7,441)
46	(8,384)	(7,999)	(7,077)	(6,663)	(6,218)	(6,581)	(6,722)	(6,960)	(7,264)
47	(8,096)	(7,726)	(6,887)	(6,442)	(6,095)	(6,330)	(6,353)	(6,627)	(7,000)
48	(7,787)	(7,480)	(6,628)	(6,171)	(5,967)	(6,078)	(6,300)	(6,577)	(6,730)
49	(7,669)	(7,285)	(6,390)	(6,020)	(5,797)	(5,997)	(6,099)	(6,351)	(6,630)
50	(7,348)	(6,896)	(6,285)	(5,832)	(5,641)	(5,723)	(5,919)	(6,126)	(6,592)
51	(7,052)	(6,675)	(6,088)	(5,525)	(5,451)	(5,522)	(5,620)	(5,900)	(6,011)
52	(6,701)	(6,462)	(5,713)	(5,260)	(5,313)	(5,405)	(5,432)	(5,664)	(5,845)
53	(6,432)	(6,166)	(5,428)	(5,133)	(5,165)	(5,263)	(5,263)	(5,427)	(5,680)
54	(6,291)	(5,988)	(5,252)	(5,039)	(4,992)	(5,098)	(5,049)	(5,271)	(5,484)
55	(6,020)	(5,683)	(5,064)	(4,842)	(4,763)	(4,816)	(4,891)	(5,084)	(5,316)
56	(5,756)	(5,469)	(4,953)	(4,547)	(4,486)	(4,702)	(4,669)	(4,832)	(5,097)
57	(5,590)	(5,135)	(4,719)	(4,388)	(4,285)	(4,196)	(4,391)	(4,618)	(4,962)
58	(5,385)	(4,918)	(4,469)	(4,131)	(4,072)	(3,957)	(4,082)	(4,430)	(4,788)
59	(5,036)	(4,728)	(4,226)	(3,897)	(3,888)	(3,829)	(3,964)	(4,295)	(4,642)
60	(4,835)	(4,496)	(3,999)	(3,698)	(3,691)	(3,997)	(3,763)	(4,061)	(4,383)
61	(4,698)	(4,321)	(3,755)	(3,586)	(3,467)	(3,396)	(3,513)	(3,779)	(4,127)
62	(4,489)	(4,172)	(3,676)	(3,254)	(3,223)	(3,210)	(3,271)	(3,516)	(3,935)
63	(4,286)	(4,011)	(3,167)	(3,080)	(3,043)	(2,991)	(3,060)	(3,226)	(3,765)
64	(4,119)	(3,723)	(2,663)	(2,760)	(2,793)	(2,618)	(2,663)	(2,866)	(3,468)
65	(3,911)	(3,507)	(2,564)	(2,547)	(2,515)	(2,361)	(2,232)	(2,585)	(3,121)
66	(3,680)	(3,219)	(2,432)	(2,411)	(2,289)	(2,066)	(2,132)	(2,365)	(2,838)
67	(3,441)	(3,082)	(2,132)	(2,112)	(2,067)	(1,888)	(1,917)	(1,988)	(2,591)
68	(3,229)	(2,726)	(1,663)	(1,680)	(1,567)	(1,517)	(1,396)	(1,702)	(2,266)
69	(2,978)	(2,389)	(1,626)	(1,625)	(1,167)	(1,177)	(1,168)	(1,313)	(2,071)
70	(2,623)	(2,139)	(1,275)	(1,298)	(937)	(899)	(831)	(1,066)	(1,913)
71	(2,302)	(1,861)	(1,115)	(1,050)	(691)	(791)	(667)	(998)	(1,660)
72	(2,086)	(1,736)	(957)	(799)	(643)	(522)	(528)	(665)	(1,257)
73	(1,629)	(1,317)	(882)	(699)	(176)	(293)	(263)	(457)	(921)
74	(1,395)	(1,122)	(573)	(173)	68	(76)	(79)	(276)	(703)
75	(1,016)	(853)	(185)	96	388	84	62	(26)	(393)
76	(739)	(398)	91	360	536	468	365	188	(32)
77	(418)	(306)	370	570	629	631	602	616	216
78	(61)	27	628	952	1,069	1,014	891	636	435
79	252	520	868	1,259	1,372	1,388	1,283	988	566
80	539	770	1,110	1,570	1,686	1,804	1,646	1,351	775
81	866	1,106	1,760	1,857	2,079	2,009	1,930	1,586	1,115
82	1,296	1,451	1,973	2,251	2,513	2,695	2,220	1,870	1,662
83	1,630	1,896	2,360	2,520	2,912	2,804	2,933	2,173	1,765
84	1,967	2,155	2,630	2,995	3,220	2,863	2,832	2,429	2,060
85	2,270	2,626	2,990	3,382	3,307	3,226	3,210	2,616	2,310
86	2,617	3,215	3,303	3,754	3,967	3,651	3,621	3,223	2,643
87	3,137	3,592	3,836	4,057	4,237	4,124	4,138	3,677	3,188
88	3,614	3,927	4,261	4,434	4,718	4,620	4,693	4,056	3,570
89	3,991	4,402	4,688	5,107	5,149	4,916	5,799	4,363	3,968
90	4,231	5,006	5,284	5,775	5,668	5,628	5,144	4,892	4,383
91	4,932	5,383	6,064	6,333	6,125	6,386	5,739	5,177	4,676
92	5,576	6,235	6,939	6,914	6,772	6,911	6,434	5,736	5,251
93	6,213	7,165	7,597	7,666	7,681	7,387	6,921	6,619	5,969
94	7,567	7,963	8,266	8,256	8,361	8,196	7,635	7,135	6,765
95	8,431	8,779	9,132	9,052	9,210	9,020	8,499	8,086	7,638
96	9,173	9,617	10,259	10,425	10,341	10,219	9,766	9,045	8,575
97	10,443	10,999	11,791	11,684	12,026	11,779	10,856	10,238	9,972
98	12,484	12,642	13,951	13,691	14,253	13,688	12,972	12,109	11,761
99	15,684	15,981	16,121	16,578	16,585	16,743	16,291	14,916	14,136
100	21,390	21,734	21,933	21,686	21,036	20,880	20,677	19,019	18,766
Mean	(7,088)	(6,634)	(5,872)	(5,510)	(5,266)	(5,265)	(5,223)	(5,529)	(5,980)
Stdev	9,487	9,367	9,177	8,997	8,883	8,892	8,563	8,342	8,266

Appendix Table C-17: Simulated Annualized Income CDFs, Cluster 8, Truncated Prices, Base Price Scenario, Brown Soils, Saskatchewan

Percentile	$\bar{R}_t$ = ($)								
No	65	70	75	80	85	90	95	100	105
1	(16,621)	(16,099)	(15,136)	(13,316)	(12,771)	(12,986)	(11,940)	(11,436)	(12,321)
2	(10,841)	(10,442)	(10,052)	(9,787)	(8,287)	(7,843)	(8,149)	(8,127)	(8,448)
3	(8,064)	(6,847)	(6,913)	(5,967)	(5,563)	(5,368)	(5,663)	(6,138)	(6,742)
4	(5,619)	(5,099)	(4,496)	(4,203)	(3,974)	(3,905)	(4,378)	(4,698)	(5,062)
5	(3,834)	(3,956)	(3,063)	(2,296)	(2,690)	(2,636)	(3,096)	(3,501)	(4,022)
6	(2,670)	(2,856)	(1,857)	(976)	(1,625)	(1,643)	(2,273)	(2,163)	(2,833)
7	(1,770)	(1,806)	(837)	(313)	(362)	(264)	(916)	(1,283)	(1,951)
8	(1,192)	(915)	30	356	250	144	(130)	(446)	(1,077)
9	(598)	39	952	842	1,229	796	630	335	(256)
10	272	746	1,366	1,716	1,663	1,745	1,386	1,029	313
11	1,002	1,444	2,360	2,447	2,350	2,263	1,885	1,451	663
12	1,727	2,038	2,933	3,143	3,043	2,787	2,395	1,930	1,269
13	2,343	2,701	3,642	3,697	3,543	3,362	2,892	2,427	1,762
14	3,112	3,436	4,184	4,243	4,078	3,881	3,407	2,768	2,292
15	3,987	3,991	4,738	4,886	4,517	4,132	4,001	3,264	2,886
16	4,643	4,588	5,385	5,257	5,125	4,669	4,416	3,888	3,938
17	4,296	5,269	5,574	5,369	5,016	5,443	4,996	4,315	3,986
18	4,915	5,652	6,029	5,922	6,079	6,023	5,641	5,083	4,148
19	5,515	6,078	6,421	6,587	6,266	6,287	6,087	5,261	4,699
20	5,629	6,536	6,988	7,118	6,865	6,962	6,686	5,913	5,161
21	6,087	6,679	7,446	7,529	7,726	7,385	6,766	6,272	5,670
22	6,623	7,221	7,918	8,262	8,264	7,961	7,196	6,675	5,886
23	7,382	7,846	8,451	8,727	8,775	8,381	7,573	7,016	6,219
24	7,691	7,956	8,787	9,073	9,188	8,763	8,144	7,484	6,623
25	8,126	8,317	9,086	9,280	9,386	9,184	8,585	7,781	6,964
26	8,553	8,680	9,442	9,565	9,674	9,373	8,861	8,167	7,199
27	8,912	9,118	9,786	9,886	9,698	9,529	9,282	8,688	7,699
28	9,176	9,503	9,986	10,163	9,891	9,742	9,446	8,843	7,827
29	9,368	9,886	10,267	10,458	10,138	10,108	9,702	9,094	8,265
30	9,838	10,265	10,536	10,772	10,444	10,441	10,037	9,362	8,388
31	10,065	10,587	10,929	11,183	10,833	10,767	10,374	9,707	8,857
32	10,315	10,866	11,127	11,226	11,311	11,097	10,639	10,146	9,389
33	10,766	11,239	11,392	11,605	11,565	11,391	10,822	10,604	9,867
34	11,157	11,600	11,767	12,068	11,879	11,675	11,198	10,884	10,094
35	11,386	11,958	12,211	12,451	12,016	11,879	11,426	11,229	10,292
36	11,668	12,239	12,548	12,871	12,495	12,148	11,739	11,513	10,643
37	12,244	12,727	12,921	13,173	12,868	12,561	12,071	11,678	10,842
38	12,992	12,991	13,252	13,478	13,239	12,799	12,356	11,864	10,916
39	12,865	13,235	13,481	13,851	13,495	12,968	12,637	12,145	11,313
40	13,171	13,530	13,875	14,274	13,786	13,267	12,898	12,432	11,632
41	13,570	13,844	14,252	14,615	14,217	13,606	13,094	12,732	11,863
42	13,905	14,144	14,601	15,036	14,614	13,999	13,476	12,917	12,266
43	14,136	14,495	15,013	15,264	14,909	14,523	13,999	13,263	12,590
44	14,330	14,749	15,383	15,646	15,297	14,862	14,322	13,565	12,918
45	14,716	15,136	15,675	15,960	15,587	15,156	14,743	13,999	13,178
46	15,221	15,586	16,087	16,289	15,879	15,446	15,018	14,218	13,486
47	15,715	15,796	16,384	16,543	16,012	15,693	15,211	14,505	13,762
48	16,113	16,058	16,723	16,860	16,430	16,088	15,614	14,792	13,964
49	16,666	16,495	17,161	17,254	16,658	16,360	15,765	15,072	14,174
50	17,081	16,841	17,569	17,514	17,069	16,786	16,148	15,436	14,597
51	17,396	17,368	17,798	17,697	17,374	17,082	16,516	15,760	14,897
52	17,688	17,572	17,911	17,980	17,660	17,286	16,728	16,062	15,292
53	17,956	17,915	18,152	18,184	17,941	17,536	17,062	16,273	15,612
54	18,180	18,312	18,353	18,341	18,286	17,621	17,269	16,675	15,862
55	18,380	18,604	18,914	18,698	18,599	18,127	17,667	17,116	16,167
56	18,815	18,886	19,216	19,097	19,005	18,662	17,961	17,385	16,495
57	19,015	19,125	19,466	19,361	19,355	18,854	18,238	17,632	16,818
58	19,364	19,339	19,764	19,722	19,581	19,048	18,754	17,977	17,183
59	19,664	19,642	20,131	20,017	19,647	19,368	19,062	18,178	17,454
60	19,993	20,057	20,429	20,268	19,934	19,595	19,329	18,364	17,663
61	20,115	20,369	20,970	20,732	20,281	19,810	19,649	18,632	17,969
62	20,651	20,725	21,272	21,081	20,691	20,122	19,881	19,028	18,260
63	20,815	21,012	21,536	21,255	20,914	20,542	20,102	19,444	18,486
64	21,122	21,412	21,990	21,665	21,604	20,937	20,467	19,757	18,761
65	21,515	21,756	22,335	22,001	21,958	21,189	20,781	20,114	18,914
66	22,004	22,108	22,906	22,446	22,312	21,727	21,093	20,481	19,389
67	22,387	22,595	23,342	22,870	22,621	22,099	21,388	20,784	19,721
68	23,076	22,933	23,791	23,294	22,964	22,382	21,886	21,093	20,043
69	22,906	23,268	23,966	23,767	23,388	22,787	22,385	21,474	20,395
70	23,217	23,575	24,252	23,896	23,566	22,617	22,733	21,618	20,728
71	23,834	24,136	24,633	24,160	23,672	22,966	23,160	22,070	20,996
72	24,470	24,571	25,062	24,385	24,112	23,258	23,386	22,371	21,336
73	24,967	24,893	25,317	24,866	24,386	23,606	23,550	22,911	21,735
74	25,437	25,168	25,566	25,299	24,644	24,115	23,995	23,413	22,066
75	25,838	25,332	25,976	25,814	25,171	24,682	24,780	23,636	22,468
76	26,187	26,088	26,617	26,127	25,581	25,119	24,942	24,199	23,187
77	26,668	26,468	26,881	26,651	25,986	25,668	25,230	24,688	23,648
78	27,139	26,895	27,126	27,078	26,497	26,316	25,867	24,998	23,878
79	27,367	27,388	27,672	27,586	26,986	26,888	26,451	25,362	24,448
80	28,086	27,976	28,029	28,017	27,636	27,418	26,888	26,326	25,086
81	28,662	28,599	28,385	28,361	27,969	27,816	27,188	26,903	25,784
82	29,387	29,197	28,766	28,678	28,338	28,277	27,687	26,923	26,385
83	29,682	29,618	29,383	29,361	29,267	28,885	28,316	27,329	27,080
84	30,510	30,294	30,088	30,194	29,890	29,595	29,236	28,619	27,544
85	31,110	30,636	30,674	30,915	30,765	29,701	29,881	29,079	28,214
86	31,736	31,514	31,389	31,760	31,430	30,299	30,671	29,643	29,686
87	32,266	32,317	32,161	32,631	31,988	31,638	31,362	30,763	29,982
88	32,963	33,019	33,213	33,775	33,062	32,257	31,838	31,261	30,325
89	33,612	33,609	34,082	34,085	34,061	33,226	32,562	31,767	30,886
90	34,561	34,663	34,719	35,302	34,697	34,260	33,336	32,980	31,686
91	35,488	35,210	35,753	36,485	35,647	35,228	34,198	33,584	32,851
92	36,564	36,386	37,069	37,142	36,649	36,491	35,311	34,571	33,867
93	37,564	37,268	38,148	37,727	37,681	37,578	36,687	35,226	34,919
94	38,642	38,905	39,365	38,992	38,987	38,688	37,364	36,588	35,367
95	39,838	40,176	40,762	40,382	40,187	39,799	38,686	37,946	36,813
96	41,887	41,388	42,118	42,083	41,388	41,015	40,276	39,582	38,156
97	43,686	43,586	44,015	43,785	43,767	43,413	41,986	41,386	39,670
98	47,384	47,371	46,932	47,395	45,317	46,363	45,886	43,161	42,171
99	50,728	50,597	50,525	50,727	49,431	48,389	46,889	46,136	45,388
100	59,468	59,486	58,386	59,087	58,238	57,394	56,461	54,729	53,736
Mean	17,421	17,448	18,871	18,170	17,886	17,332	17,089	16,623	15,369
StDev	13,618	13,436	13,279	13,199	12,888	12,732	12,638	12,436	12,397

Appendix Table C-18: Simulated Annualized Income IRRs, Cluster 9, Truncated Prices, High Price Scenario, Brown Soils, Saskatchewan

Percentile	Rs = (%)								
	60	70	75	80	85	90	95	100	105
1	(2,071)	(1,393)	(76)	679	814	643	654	813	(423)
2	6,627	6,648	6,795	7,605	7,107	7,830	7,675	6,331	5,661
3	9,269	9,931	9,670	9,763	9,361	9,382	9,367	8,307	7,336
4	10,924	12,116	11,766	11,899	11,606	11,696	10,652	10,299	9,226
5	13,263	13,306	13,324	13,791	13,614	13,537	12,927	12,579	10,552
6	14,588	14,766	15,007	14,986	15,215	14,843	14,699	13,903	11,868
7	15,767	16,004	16,766	17,106	16,361	15,836	15,112	14,961	13,016
8	16,455	17,116	18,102	18,681	17,577	16,369	15,868	15,377	14,066
9	17,193	18,026	19,081	19,410	18,661	17,971	16,800	16,388	15,196
10	18,263	18,952	20,071	20,169	19,667	18,633	17,906	17,376	16,098
11	18,854	19,631	20,852	20,866	20,237	19,661	18,866	18,092	17,228
12	19,756	20,673	21,696	21,612	20,996	20,665	19,699	18,922	18,002
13	21,188	21,612	22,583	22,675	21,665	21,386	20,667	19,708	18,973
14	22,396	22,779	23,256	23,863	22,728	22,156	21,119	20,668	19,579
15	23,129	23,695	23,895	23,975	23,250	22,726	21,968	21,643	20,196
16	23,765	24,436	24,280	24,604	23,868	23,260	22,526	22,086	20,766
17	24,494	24,856	24,698	24,907	24,273	23,696	23,026	22,646	21,198
18	25,263	25,326	25,379	25,643	24,967	24,368	23,573	22,875	21,668
19	25,637	25,623	25,971	25,611	25,767	24,910	24,287	23,636	22,254
20	26,032	26,176	26,382	26,195	26,201	25,393	24,997	24,215	22,625
21	26,479	26,666	26,896	26,748	26,713	25,825	25,615	24,752	23,260
22	27,095	27,331	27,461	27,362	27,086	26,267	25,711	25,086	23,621
23	27,705	28,065	28,067	27,760	27,670	26,667	26,227	25,463	24,080
24	28,311	28,596	28,709	28,322	28,170	27,060	26,570	25,970	24,660
25	28,733	29,162	29,122	28,770	28,602	27,360	26,827	26,395	25,063
26	29,277	29,738	29,363	29,263	28,776	28,022	27,172	26,883	25,274
27	29,925	30,284	29,773	29,867	29,279	28,628	27,748	27,264	25,587
28	30,489	30,682	30,096	30,391	29,756	29,184	28,488	27,887	26,229
29	31,225	31,163	30,804	31,288	30,333	29,761	29,016	28,276	26,719
30	31,860	31,745	31,566	31,686	31,051	30,216	29,614	28,732	27,067
31	32,467	32,321	32,161	32,269	31,663	30,627	30,081	29,999	27,688
32	33,136	32,832	32,927	32,915	32,363	30,951	30,527	29,388	28,013
33	33,636	33,369	33,267	33,210	32,814	31,602	30,913	29,987	28,386
34	33,971	33,921	33,868	33,682	33,283	32,121	31,862	30,386	28,666
35	34,361	34,319	34,168	33,916	33,528	32,669	31,964	30,797	29,066
36	34,661	34,657	34,616	34,311	33,875	33,184	32,362	31,175	29,613
37	35,073	35,076	34,998	34,636	34,396	33,538	32,685	31,512	30,162
38	35,550	35,632	35,461	35,115	34,916	34,121	33,267	32,061	30,691
39	36,021	36,091	35,906	35,628	35,364	34,691	33,761	32,564	31,704
40	36,668	36,572	36,321	36,163	35,900	35,184	34,366	33,019	31,885
41	36,964	36,964	36,751	36,498	36,115	35,565	34,732	33,696	32,176
42	37,425	37,515	37,137	37,067	36,564	36,037	35,197	33,967	32,694
43	38,086	37,932	37,661	37,661	37,029	36,423	35,652	34,298	33,140
44	38,719	38,389	38,416	38,132	37,661	36,691	35,960	34,615	33,556
45	39,274	39,019	39,112	38,906	37,917	37,066	36,163	34,934	33,935
46	39,791	39,439	39,665	39,416	38,319	37,555	36,517	35,383	34,473
47	40,391	40,088	40,060	39,936	38,658	38,081	36,852	35,732	34,999
48	40,726	40,665	40,591	40,523	39,131	38,478	37,337	36,166	35,613
49	41,096	40,996	41,197	41,085	39,573	39,178	37,760	36,914	36,219
50	41,661	41,539	41,623	41,635	40,158	39,781	38,262	36,998	36,112
51	42,086	42,018	42,162	42,023	40,815	40,264	38,918	37,527	36,673
52	42,272	42,266	42,566	42,357	41,339	40,713	39,469	37,966	36,977
53	42,640	42,795	43,053	42,766	41,838	40,961	39,849	38,391	37,480
54	43,056	43,327	43,538	43,156	42,267	41,375	40,286	39,111	37,916
55	43,489	43,772	43,956	43,682	42,677	41,865	40,814	39,538	38,322
56	44,166	44,176	44,258	44,031	43,060	42,231	41,277	39,988	38,836
57	44,837	44,782	44,788	44,538	43,538	42,705	41,736	40,466	39,315
58	45,271	44,927	45,101	45,259	44,021	43,199	42,421	41,066	39,783
59	45,782	45,488	45,588	45,981	44,477	43,648	42,993	41,338	40,167
60	46,327	46,019	45,951	46,146	44,867	44,063	43,366	41,867	40,713
61	46,619	46,516	46,336	46,488	45,262	44,273	44,005	42,491	41,083
62	47,209	47,082	46,964	47,115	45,745	44,699	44,333	42,965	41,318
63	47,610	47,678	47,372	47,494	46,281	45,136	44,988	43,628	41,885
64	47,953	48,139	48,101	47,979	46,899	45,712	45,368	44,089	42,166
65	48,236	48,568	48,286	48,328	47,371	46,274	45,878	44,552	43,616
66	48,731	49,018	48,895	48,697	47,716	46,729	46,528	44,886	43,233
67	49,272	49,695	49,562	49,179	48,167	47,468	47,089	45,198	43,981
68	49,991	50,081	50,108	49,537	48,514	48,118	47,613	45,766	44,643
69	50,373	50,387	50,582	50,072	49,286	48,536	48,027	46,218	45,056
70	51,101	50,981	50,886	50,586	49,681	48,862	48,532	46,711	45,636
71	51,618	51,689	51,270	50,986	49,958	49,286	48,962	47,377	46,035
72	52,051	52,041	51,723	51,344	50,556	49,797	49,367	47,882	46,496
73	52,619	52,362	52,086	51,982	51,138	50,287	49,784	48,325	46,872
74	53,139	52,976	52,674	52,279	51,671	50,738	50,066	48,749	47,363
75	53,661	53,491	53,071	52,821	52,184	51,199	50,458	49,261	47,869
76	54,086	54,174	53,670	53,299	52,672	51,738	50,927	49,787	48,217
77	54,618	54,629	54,322	54,068	53,337	52,266	51,585	50,311	48,662
78	54,995	55,079	54,999	54,683	53,961	52,963	51,986	50,927	49,092
79	55,608	55,661	55,516	55,120	54,394	53,591	52,388	51,328	49,436
80	56,198	56,263	55,988	55,538	54,956	53,956	52,888	51,731	49,949
81	56,512	56,782	56,488	56,087	55,383	54,371	53,566	52,192	50,329
82	56,998	57,010	56,979	56,638	55,895	54,767	53,972	52,621	51,168
83	57,663	57,574	57,621	56,957	56,666	55,621	54,666	53,399	51,944
84	58,333	58,110	58,276	57,980	56,765	56,085	55,169	54,138	52,697
85	59,066	58,693	59,661	58,760	57,972	56,574	55,623	54,988	52,967
86	60,225	59,769	60,226	59,367	57,928	56,899	56,218	55,306	53,638
87	61,236	60,632	61,097	60,684	58,935	57,638	56,937	55,858	54,291
88	62,295	62,067	62,073	61,521	59,784	58,779	57,810	56,383	55,060
89	63,265	63,112	62,836	62,775	60,629	59,696	58,885	57,228	55,920
90	64,363	64,668	63,914	63,583	62,076	60,855	60,433	58,646	56,898
91	66,025	66,212	65,909	64,760	63,328	62,662	61,868	59,696	57,782
92	67,062	67,079	66,091	66,062	64,986	63,679	62,988	61,289	59,026
93	68,156	68,918	67,337	67,095	65,992	65,151	64,632	62,888	60,337
94	69,328	69,388	68,728	68,058	67,620	66,695	66,015	63,817	62,078
95	71,029	71,286	71,196	69,187	69,197	67,999	67,188	65,166	63,523
96	73,901	73,719	73,358	72,646	71,294	70,192	69,322	66,769	64,960
97	76,661	75,739	75,660	75,296	74,491	73,610	71,782	68,786	66,931
98	79,235	78,689	79,081	78,333	77,130	76,364	75,092	72,681	70,356
99	83,564	82,279	81,987	81,163	80,630	79,673	78,744	76,239	74,210
100	91,443	90,331	89,727	88,681	87,982	86,990	85,968	83,299	81,138
Mean	61,963	61,988	61,982	61,796	61,086	60,230	59,478	58,380	56,666
StDev	17,661	17,621	17,387	17,164	16,986	16,711	16,430	16,180	16,013

Appendix Table D-19: Simulated annualized income CDFs, Cluster 9, Prime Insurance Policy, Low Price Scenario, Brown Soils, Saskatchewan

Percentile No	65	70	75	80	No + (mm) 85	90	95	100	105
1	(32,016)	(30,712)	(29,478)	(27,814)	(26,311)	(25,671)	(25,409)	(25,327)	(26,448)
2	(26,320)	(27,523)	(26,126)	(25,728)	(24,381)	(23,672)	(24,086)	(23,446)	(23,714)
3	(26,692)	(25,969)	(24,367)	(23,632)	(23,142)	(22,489)	(22,496)	(21,889)	(22,086)
4	(25,576)	(24,788)	(23,366)	(22,361)	(21,956)	(21,615)	(21,388)	(21,422)	(20,790)
5	(24,641)	(23,666)	(22,101)	(21,259)	(20,981)	(20,393)	(20,136)	(20,279)	(20,129)
6	(23,386)	(22,366)	(21,469)	(20,280)	(19,629)	(19,617)	(19,316)	(19,386)	(19,368)
7	(22,588)	(21,482)	(20,486)	(19,352)	(19,042)	(18,798)	(18,758)	(18,741)	(18,888)
8	(21,621)	(20,736)	(19,807)	(18,783)	(18,497)	(18,082)	(18,065)	(17,965)	(18,109)
9	(21,112)	(20,333)	(19,215)	(18,446)	(18,038)	(17,572)	(17,992)	(17,336)	(17,485)
10	(20,618)	(19,886)	(18,622)	(18,093)	(17,665)	(17,198)	(17,219)	(16,966)	(16,956)
11	(19,831)	(19,166)	(18,252)	(17,727)	(17,286)	(16,868)	(16,889)	(16,788)	(16,535)
12	(19,391)	(18,838)	(17,868)	(17,381)	(17,069)	(16,568)	(16,823)	(16,463)	(16,216)
13	(18,992)	(18,367)	(17,538)	(16,998)	(16,651)	(16,168)	(15,911)	(15,972)	(15,971)
14	(18,761)	(18,287)	(16,915)	(16,628)	(16,166)	(15,825)	(15,621)	(15,777)	(15,736)
15	(18,338)	(17,772)	(16,666)	(16,138)	(15,673)	(15,368)	(15,286)	(15,427)	(15,436)
16	(18,008)	(17,171)	(16,172)	(15,844)	(15,379)	(15,209)	(15,110)	(15,226)	(15,389)
17	(17,667)	(16,798)	(15,866)	(15,384)	(15,086)	(14,975)	(14,880)	(15,057)	(15,057)
18	(17,052)	(16,656)	(15,533)	(15,295)	(14,666)	(14,686)	(14,686)	(14,638)	(14,666)
19	(16,567)	(16,172)	(15,280)	(14,817)	(14,358)	(14,358)	(14,328)	(14,354)	(14,299)
20	(16,216)	(15,778)	(14,792)	(14,398)	(14,086)	(14,082)	(14,081)	(14,280)	(14,088)
21	(15,965)	(15,447)	(14,356)	(14,325)	(13,783)	(13,861)	(13,738)	(13,943)	(13,838)
22	(15,535)	(15,287)	(14,315)	(13,986)	(13,516)	(13,446)	(13,443)	(13,581)	(13,646)
23	(15,076)	(14,973)	(14,069)	(13,398)	(13,201)	(13,103)	(13,095)	(13,125)	(13,280)
24	(14,686)	(14,716)	(13,766)	(13,099)	(12,899)	(12,626)	(12,628)	(12,918)	(12,982)
25	(14,473)	(14,375)	(13,649)	(12,797)	(12,596)	(12,392)	(12,164)	(12,643)	(12,660)
26	(14,226)	(14,184)	(13,138)	(12,621)	(12,197)	(11,997)	(11,946)	(12,393)	(12,486)
27	(14,032)	(13,626)	(12,772)	(12,282)	(11,822)	(11,671)	(11,789)	(12,077)	(12,138)
28	(13,786)	(13,387)	(12,452)	(11,886)	(11,601)	(11,371)	(11,466)	(11,786)	(11,916)
29	(13,344)	(13,092)	(12,151)	(11,615)	(11,279)	(11,138)	(11,187)	(11,432)	(11,736)
30	(13,038)	(12,618)	(11,715)	(11,381)	(10,989)	(10,846)	(10,933)	(11,122)	(11,346)
31	(12,710)	(12,146)	(11,536)	(11,161)	(10,776)	(10,686)	(10,669)	(10,861)	(11,206)
32	(12,260)	(11,860)	(11,228)	(10,816)	(10,539)	(10,382)	(10,425)	(10,478)	(11,078)
33	(11,961)	(11,567)	(10,972)	(10,578)	(10,264)	(10,078)	(10,264)	(10,264)	(10,686)
34	(11,657)	(11,339)	(10,716)	(10,256)	(10,000)	(9,776)	(10,000)	(10,000)	(10,370)
35	(11,436)	(10,972)	(10,581)	(10,026)	(9,772)	(9,643)	(9,787)	(9,736)	(10,297)
36	(11,252)	(10,762)	(10,179)	(9,587)	(9,648)	(9,388)	(9,606)	(9,566)	(10,050)
37	(11,020)	(10,604)	(9,856)	(9,362)	(9,213)	(8,995)	(9,261)	(9,622)	(9,617)
38	(10,760)	(10,431)	(9,613)	(9,126)	(8,862)	(8,649)	(8,935)	(9,216)	(9,257)
39	(10,598)	(10,266)	(9,355)	(8,904)	(8,553)	(8,409)	(8,665)	(8,736)	(8,967)
40	(10,369)	(9,968)	(9,055)	(8,638)	(8,316)	(8,227)	(8,440)	(8,442)	(8,739)
41	(10,098)	(9,780)	(8,866)	(8,413)	(8,092)	(8,028)	(8,149)	(8,271)	(8,547)
42	(9,762)	(9,353)	(8,607)	(8,152)	(7,939)	(7,819)	(7,766)	(7,932)	(8,327)
43	(9,636)	(8,988)	(8,265)	(7,825)	(7,713)	(7,551)	(7,699)	(7,930)	(8,066)
44	(9,477)	(8,748)	(7,934)	(7,525)	(7,338)	(7,275)	(7,211)	(7,749)	(7,845)
45	(9,097)	(8,413)	(7,683)	(7,334)	(7,252)	(7,063)	(6,911)	(7,139)	(7,611)
46	(8,988)	(8,237)	(7,440)	(7,101)	(6,877)	(6,720)	(6,897)	(6,886)	(7,352)
47	(8,599)	(8,068)	(7,225)	(6,845)	(6,530)	(6,440)	(6,435)	(6,692)	(7,150)
48	(8,367)	(7,778)	(7,080)	(6,566)	(6,266)	(6,273)	(6,225)	(6,756)	(6,987)
49	(8,105)	(7,589)	(6,736)	(6,319)	(6,069)	(6,060)	(5,985)	(6,389)	(6,633)
50	(7,780)	(7,216)	(6,552)	(6,136)	(5,898)	(5,857)	(5,871)	(6,180)	(6,382)
51	(7,586)	(6,986)	(6,228)	(5,901)	(5,563)	(5,675)	(5,746)	(5,969)	(6,226)
52	(7,166)	(6,766)	(5,931)	(5,650)	(5,256)	(5,467)	(5,505)	(5,693)	(6,070)
53	(6,931)	(6,519)	(5,771)	(5,447)	(5,020)	(5,121)	(5,292)	(5,397)	(5,888)
54	(6,777)	(6,271)	(5,466)	(5,126)	(4,761)	(4,827)	(5,027)	(5,155)	(5,616)
55	(6,579)	(5,957)	(5,073)	(4,749)	(4,447)	(4,537)	(4,728)	(4,913)	(5,370)
56	(6,388)	(5,759)	(4,810)	(4,588)	(4,388)	(4,382)	(4,446)	(4,691)	(5,167)
57	(5,760)	(5,536)	(4,629)	(4,388)	(4,097)	(4,025)	(4,178)	(4,589)	(4,988)
58	(5,497)	(5,278)	(4,364)	(4,058)	(3,839)	(3,844)	(3,958)	(4,282)	(4,651)
59	(5,219)	(5,086)	(4,099)	(3,829)	(3,759)	(3,699)	(3,736)	(4,082)	(4,442)
60	(5,025)	(4,737)	(3,877)	(3,538)	(3,384)	(3,384)	(3,614)	(3,988)	(4,257)
61	(4,816)	(4,444)	(3,665)	(3,368)	(3,269)	(3,114)	(3,304)	(3,692)	(4,085)
62	(4,521)	(4,142)	(3,483)	(3,178)	(2,962)	(2,939)	(2,964)	(3,398)	(3,825)
63	(4,167)	(3,827)	(3,146)	(2,817)	(2,562)	(2,667)	(2,635)	(2,911)	(3,339)
64	(3,884)	(3,563)	(2,782)	(2,531)	(2,230)	(2,327)	(2,395)	(2,618)	(3,255)
65	(3,698)	(3,166)	(2,628)	(2,272)	(1,960)	(2,069)	(2,226)	(2,466)	(3,068)
66	(3,296)	(2,828)	(2,132)	(1,961)	(1,617)	(1,883)	(2,003)	(2,230)	(2,868)
67	(3,011)	(2,521)	(1,871)	(1,787)	(1,268)	(1,687)	(1,793)	(1,973)	(2,676)
68	(2,888)	(2,261)	(1,665)	(1,666)	(1,089)	(1,225)	(1,588)	(1,678)	(2,384)
69	(2,612)	(1,871)	(1,418)	(1,171)	(765)	(1,012)	(1,281)	(1,433)	(1,985)
70	(2,278)	(1,577)	(963)	(968)	(528)	(713)	(1,044)	(1,281)	(1,511)
71	(1,776)	(1,179)	(599)	(765)	(26)	(485)	(831)	(1,088)	(1,263)
72	(1,427)	(958)	(388)	(563)	227	(139)	(544)	(760)	(1,063)
73	(997)	(738)	(95)	(372)	586	221	(138)	(447)	(686)
74	(736)	(321)	166	69	837	528	212	(167)	(383)
75	(467)	61	332	446	1,099	819	672	105	(64)
76	(100)	516	1,067	988	1,388	1,146	968	382	329
77	152	888	1,386	1,328	1,516	1,362	1,261	775	596
78	593	1,286	1,665	1,791	1,888	1,632	1,685	1,312	915
79	988	1,648	2,084	2,137	2,267	1,982	2,003	1,776	1,235
80	1,298	1,922	2,441	2,402	2,611	2,338	2,482	2,080	1,560
81	1,675	2,156	2,775	2,841	2,966	2,681	2,765	2,561	1,862
82	1,976	2,397	3,214	3,272	3,362	3,173	3,316	2,868	2,156
83	2,361	2,772	3,582	3,716	3,711	3,487	3,695	3,096	2,588
84	2,730	3,488	3,972	4,119	4,089	3,966	4,073	3,438	2,862
85	3,298	3,936	4,332	4,666	4,457	4,299	4,445	3,917	3,175
86	3,871	4,388	5,079	5,288	4,841	4,735	4,938	4,388	3,638
87	4,798	5,188	5,781	5,767	5,281	5,203	5,398	5,042	4,213
88	5,141	5,648	6,238	6,291	5,988	5,836	6,187	5,488	4,688
89	5,737	6,328	6,976	6,877	6,643	6,396	6,529	5,966	5,286
90	6,635	7,086	7,129	7,561	7,064	6,882	7,075	6,568	5,886
91	7,226	7,692	7,760	8,067	7,726	7,667	7,671	7,118	6,672
92	7,867	8,068	8,638	8,727	8,356	8,415	8,282	7,781	7,386
93	8,715	9,742	9,288	9,986	9,788	9,345	8,879	8,579	8,089
94	10,216	10,648	10,162	10,598	10,387	10,188	9,895	9,765	8,868
95	11,853	11,868	11,682	11,884	11,638	11,371	11,083	10,527	9,886
96	13,963	13,862	13,288	12,796	12,916	12,625	12,261	11,862	10,989
97	15,986	16,625	15,233	16,916	14,645	14,174	13,681	13,187	12,872
98	19,388	19,899	16,872	16,681	19,936	15,361	16,967	16,136	15,676
99	17,686	17,788	18,142	18,166	17,766	17,382	17,375	16,676	16,672
100	23,195	22,816	23,953	23,668	23,476	22,139	21,268	20,774	19,968
Mean	(7,888)	(6,987)	(5,628)	(5,916)	(5,263)	(5,226)	(5,286)	(5,568)	(5,887)
Stdev	10,668	10,675	10,237	10,882	9,799	9,564	9,472	9,282	9,115

Appendix Table C-20: Simulated Annualized Income CDFs, Cluster 8, Price Insurance Policy, Base Price Scenario, Brown Soils, Saskatchewan

Percentile No	At a (ha) 65	70	75	80	85	90	95	100	105
1	(15,298)	(14,627)	(14,041)	(13,068)	(13,111)	(12,530)	(12,280)	(11,989)	(12,256)
2	(11,266)	(10,017)	(8,772)	(8,384)	(9,083)	(7,975)	(8,632)	(8,056)	(8,966)
3	(9,291)	(8,499)	(7,136)	(6,260)	(6,493)	(6,288)	(6,642)	(7,006)	(7,147)
4	(7,665)	(7,015)	(5,900)	(5,166)	(6,493)	(4,361)	(5,166)	(5,260)	(6,013)
5	(6,266)	(5,521)	(4,231)	(4,186)	(3,114)	(3,673)	(3,795)	(4,010)	(4,744)
6	(5,266)	(4,536)	(3,262)	(2,966)	(2,101)	(2,632)	(2,987)	(2,852)	(3,000)
7	(3,366)	(2,700)	(2,367)	(1,903)	(1,598)	(1,796)	(1,362)	(1,749)	(3,156)
8	(1,853)	(1,710)	(1,356)	(967)	(375)	(966)	(618)	(956)	(2,206)
9	(1,207)	(826)	(263)	91	272	65	176	(301)	(1,256)
10	(695)	157	634	1,030	1,089	736	570	268	(925)
11	188	791	1,000	1,499	1,728	1,225	1,047	684	(347)
12	768	1,331	1,841	2,366	2,177	1,869	1,360	1,026	488
13	1,292	1,796	2,388	2,796	2,982	2,526	1,799	1,560	1,663
14	1,732	2,419	2,961	3,154	3,112	2,988	2,261	2,062	1,998
15	2,239	2,988	3,393	3,499	3,888	3,368	2,868	2,396	2,181
16	3,211	3,233	3,729	3,780	4,382	3,857	3,196	2,858	2,618
17	3,649	3,621	4,226	4,231	4,881	4,457	3,666	3,268	2,967
18	3,832	4,009	4,668	4,668	5,166	5,016	4,209	3,652	3,266
19	4,166	4,263	4,895	5,089	5,485	5,431	4,617	4,207	3,668
20	4,616	5,098	5,468	5,385	5,888	5,768	5,138	4,662	3,998
21	5,299	5,366	6,063	5,975	6,087	6,088	5,677	5,016	4,173
22	5,569	5,816	6,468	6,353	6,563	6,488	5,858	5,382	4,525
23	5,866	6,289	6,876	6,916	6,988	6,716	6,367	5,766	4,726
24	6,262	6,744	7,367	7,234	7,389	7,082	6,686	6,168	5,025
25	6,652	7,091	7,883	7,585	7,682	7,538	6,933	6,567	5,273
26	7,072	7,456	8,413	8,069	7,972	7,867	7,291	6,888	5,639
27	7,399	7,749	8,797	8,528	8,388	8,211	7,633	7,088	5,918
28	7,669	8,143	9,198	9,068	8,868	8,649	8,227	7,388	6,271
29	8,311	8,529	9,368	9,268	9,286	8,867	8,486	7,788	6,618
30	8,893	9,061	9,787	9,622	9,719	9,219	8,661	8,073	7,383
31	9,388	9,661	10,085	10,367	10,366	9,861	9,087	8,321	7,672
32	9,766	10,032	10,457	10,723	10,618	10,226	9,352	8,667	7,991
33	10,017	10,316	10,838	11,108	10,978	10,739	9,637	9,168	8,371
34	10,417	10,672	11,196	11,364	11,611	11,177	10,251	9,636	8,668
35	10,886	10,967	11,652	12,026	11,757	11,479	10,629	10,089	9,207
36	11,081	11,236	12,041	12,336	12,102	11,732	10,943	10,257	9,642
37	11,286	11,641	12,429	12,835	12,366	12,085	11,196	10,678	10,116
38	11,598	11,752	12,772	13,262	12,676	12,389	11,566	10,999	10,386
39	11,987	12,176	13,032	13,491	13,138	12,588	11,888	11,317	10,660
40	12,371	12,497	13,285	13,746	13,429	12,984	12,166	11,766	11,033
41	12,763	12,688	13,582	14,039	13,696	13,191	12,516	12,067	11,377
42	13,080	13,267	13,911	14,378	13,961	13,586	12,988	12,466	11,726
43	13,486	13,667	14,331	14,766	14,278	13,879	13,256	12,886	11,988
44	13,739	14,076	14,571	14,796	14,696	14,212	13,567	13,175	12,376
45	14,149	14,413	15,007	15,117	14,818	14,532	14,012	13,686	12,669
46	14,573	14,711	15,270	15,469	15,095	14,971	14,286	13,999	13,277
47	14,986	15,079	15,662	15,914	15,395	15,157	14,573	14,119	13,615
48	14,961	15,388	16,084	16,263	15,667	15,673	15,010	14,664	13,888
49	15,468	15,876	16,488	16,611	15,971	15,728	15,386	15,081	14,139
50	15,997	16,288	16,781	17,089	16,287	15,995	15,666	15,388	14,381
51	16,468	16,687	17,067	17,288	16,787	16,286	15,917	15,688	14,662
52	16,878	17,113	17,618	17,683	16,934	16,628	16,268	15,988	15,291
53	17,287	17,382	17,881	17,956	17,276	16,886	16,669	16,261	15,557
54	17,788	17,988	17,862	18,181	17,661	17,173	17,268	16,728	15,856
55	18,432	18,636	18,288	18,336	18,288	17,588	17,788	16,988	16,218
56	18,776	18,737	18,732	18,988	18,318	17,888	18,181	17,488	16,574
57	19,865	19,168	19,162	19,257	18,729	18,381	18,276	17,886	17,863
58	19,261	19,881	19,732	19,587	19,883	18,888	18,728	18,186	17,628
59	19,636	19,998	20,266	19,988	19,477	19,336	19,163	18,662	17,868
60	20,681	20,273	20,532	20,266	19,828	19,681	19,395	18,617	18,162
61	20,696	20,786	21,016	20,666	20,182	19,868	19,576	19,166	18,668
62	21,185	21,261	21,387	21,086	20,582	20,663	19,971	19,693	18,791
63	21,561	21,788	21,669	21,576	21,089	20,864	20,263	19,766	19,077
64	21,888	21,988	22,136	21,866	21,395	21,213	20,728	20,097	19,288
65	22,167	22,317	22,568	22,176	21,952	21,383	21,061	20,668	19,647
66	22,552	22,799	22,988	22,686	22,436	22,115	21,788	20,988	20,075
67	23,063	23,237	23,436	22,976	23,015	22,686	22,062	21,319	20,366
68	23,611	23,736	23,895	23,618	23,486	22,717	22,319	21,738	20,683
69	23,966	24,673	24,388	24,023	24,186	23,229	23,868	22,312	21,158
70	24,286	24,998	24,815	24,651	24,670	23,571	23,389	22,996	21,586
71	24,762	25,427	25,238	24,956	25,388	24,298	23,961	23,363	22,883
72	25,412	25,753	25,746	25,695	25,736	24,618	24,452	23,889	22,575
73	25,731	26,083	26,287	26,288	26,178	25,284	24,956	24,888	23,888
74	26,481	26,673	26,733	26,776	26,572	25,637	25,268	24,888	23,648
75	26,856	26,772	27,263	27,266	27,198	26,327	25,688	25,885	23,866
76	27,388	27,163	27,678	28,888	27,868	26,987	26,381	25,388	24,388
77	27,776	27,726	28,216	28,262	27,886	27,388	26,788	25,671	26,687
78	28,135	28,284	28,868	28,732	28,654	28,888	27,287	26,873	25,287
79	28,788	28,938	29,258	29,252	29,887	28,373	27,868	26,278	25,767
80	29,666	29,329	29,687	29,573	29,388	28,788	28,212	26,866	26,138
81	30,288	30,138	30,432	30,873	29,978	29,117	28,671	27,388	26,665
82	30,681	30,643	31,123	30,788	30,699	29,888	29,866	27,966	26,973
83	31,866	31,663	31,896	31,262	30,868	30,382	29,618	28,317	27,676
84	31,951	32,888	32,263	32,861	31,687	31,221	30,262	29,229	28,383
85	32,458	32,686	32,862	32,814	32,863	31,688	31,889	29,912	29,358
86	33,266	33,166	33,671	33,412	32,898	32,382	31,634	30,623	30,888
87	33,881	34,216	34,268	34,888	33,274	33,136	32,618	31,431	30,796
88	34,873	35,262	35,828	35,852	34,226	33,868	33,686	32,178	31,732
89	36,162	36,682	36,737	36,888	35,373	34,888	33,961	33,267	32,725
90	37,868	37,376	38,732	36,888	36,866	35,735	35,866	34,333	33,389
91	37,866	37,996	38,311	37,918	37,988	36,995	36,161	35,866	34,317
92	38,958	39,888	39,672	38,696	38,961	38,695	37,689	36,187	35,618
93	40,187	40,217	40,674	39,838	39,787	39,691	38,663	37,388	36,884
94	41,289	41,298	42,871	41,691	40,888	40,785	39,771	38,634	37,166
95	42,662	42,261	42,982	42,776	41,888	41,877	40,822	39,677	38,266
96	44,751	43,815	44,277	44,888	43,268	43,136	42,887	41,888	40,196
97	46,888	45,672	47,266	46,287	46,881	46,758	43,866	42,528	41,982
98	47,788	48,621	47,988	48,388	48,888	47,286	45,671	44,966	43,818
99	51,817	51,266	51,181	51,292	38,729	38,263	49,167	48,238	46,661
100	55,687	55,626	38,262	55,812	54,773	54,298	53,388	51,361	98,388
Mean	17,488	17,677	18,895	18,198	17,966	17,596	17,867	16,282	15,266
Stdev	14,588	14,376	14,167	13,988	13,786	13,625	13,672	13,184	12,897

Appendix Table C-21: Simulated annualized income CDFs, Cluster 8, Price Insurance Policy, High Price Scenario, Brown Soils, Saskatchewan

Percentile	Mu = (mm)								
Mu	65	70	75	80	85	90	95	100	105
1	(3,867)	(3,076)	(1,972)	(905)	(622)	(2,176)	(1,606)	(643)	(2,392)
2	6,572	5,932	5,625	6,121	6,002	6,443	5,430	5,676	6,438
3	7,763	8,618	8,772	8,906	9,030	9,734	8,631	8,511	7,699
4	10,476	10,456	11,311	10,997	11,209	11,062	11,097	10,365	9,996
5	12,316	12,377	12,849	13,067	12,844	13,167	12,452	11,675	11,219
6	13,804	14,651	14,710	15,076	14,458	14,307	13,544	13,025	11,761
7	15,158	15,787	15,965	16,315	15,427	15,650	14,531	13,888	12,981
8	16,209	16,630	17,154	17,448	16,699	16,654	15,611	14,984	13,844
9	17,111	18,023	18,208	18,627	17,884	17,327	16,388	15,837	14,854
10	18,043	19,060	19,072	19,652	18,876	18,674	17,244	16,923	15,767
11	19,195	19,938	20,186	20,570	19,792	19,654	18,381	17,977	16,644
12	19,971	20,689	21,086	21,845	20,613	20,570	19,041	18,662	17,648
13	20,660	20,996	21,791	21,665	20,998	20,647	19,797	19,288	18,345
14	21,305	21,731	22,639	22,236	21,498	21,353	20,641	19,798	19,146
15	22,482	22,955	23,238	23,127	22,361	22,209	21,328	20,118	19,659
16	23,694	23,682	23,694	23,688	23,079	22,853	21,915	20,795	20,239
17	24,286	24,216	24,668	24,213	23,638	23,423	22,462	21,291	20,638
18	24,827	24,696	25,091	24,696	24,169	23,813	22,788	21,618	21,186
19	25,437	25,261	25,416	25,179	24,728	24,477	23,496	22,389	21,668
20	25,860	25,780	26,026	26,239	25,276	25,252	24,286	23,147	22,011
21	26,416	26,267	26,661	26,805	25,767	25,714	24,841	23,709	22,779
22	26,986	27,286	27,140	27,264	26,260	26,206	25,432	24,302	23,282
23	27,361	27,761	27,686	27,572	26,984	26,669	25,898	25,101	23,765
24	28,080	28,237	28,256	28,328	27,613	27,262	26,268	25,662	24,318
25	28,536	28,614	29,167	29,064	27,981	27,835	26,641	25,987	24,986
26	29,265	29,108	29,688	29,381	28,321	28,077	26,998	26,681	25,237
27	29,748	29,574	30,118	30,163	29,013	28,377	27,360	27,168	25,571
28	29,957	29,967	30,776	30,722	29,639	28,894	27,827	27,641	25,873
29	30,675	30,388	31,226	31,044	30,071	29,362	28,295	27,833	26,388
30	31,088	30,988	31,656	31,383	30,380	29,682	28,761	28,267	27,079
31	31,682	31,361	32,271	31,998	31,082	30,019	29,271	28,681	27,363
32	31,772	31,917	32,664	32,281	31,386	30,685	29,859	28,947	27,932
33	32,284	32,369	33,084	32,570	32,153	31,122	30,339	29,386	28,389
34	32,912	32,899	33,371	33,264	32,564	31,691	31,019	29,865	28,791
35	33,526	33,535	33,670	33,739	33,134	32,252	31,562	30,486	29,216
36	34,051	34,002	34,151	34,122	33,545	32,672	32,099	30,728	29,598
37	34,551	34,392	34,615	34,264	34,082	33,163	32,610	31,274	30,151
38	34,901	34,660	34,914	34,630	34,422	33,738	33,069	31,706	30,537
39	35,330	35,100	35,625	35,235	34,996	34,126	33,560	32,361	30,999
40	35,729	35,777	36,073	35,614	35,225	34,646	33,995	32,979	31,677
41	36,237	36,165	36,667	36,107	35,564	35,063	34,369	33,391	32,081
42	36,647	36,730	37,023	36,668	35,986	35,536	34,774	33,742	32,389
43	37,229	37,054	37,427	37,122	36,371	35,969	35,149	34,038	32,822
44	37,716	37,560	37,864	37,708	36,970	36,216	35,596	34,386	33,139
45	38,175	38,101	38,270	38,265	37,705	36,719	35,953	34,659	33,653
46	38,552	38,514	38,891	38,667	38,262	37,083	36,352	35,121	33,779
47	38,883	38,969	39,388	39,438	38,732	37,692	36,676	35,469	34,275
48	39,762	39,709	40,014	39,836	39,074	38,161	37,198	35,941	34,599
49	40,197	40,279	40,681	40,396	39,579	38,611	37,723	36,562	34,988
50	40,780	40,677	40,749	40,677	39,792	38,976	38,264	36,896	35,386
51	41,484	41,325	40,986	40,968	40,369	39,563	38,861	37,291	35,648
52	41,611	41,747	41,385	41,299	40,737	39,908	39,172	37,535	36,283
53	42,432	42,073	42,207	41,881	41,288	40,288	39,735	37,977	36,457
54	42,921	42,439	42,588	42,181	41,591	40,595	40,146	38,363	36,998
55	43,560	42,975	43,044	42,703	41,861	41,221	40,642	38,635	37,388
56	43,966	43,368	43,619	43,434	42,289	41,578	40,844	38,998	37,971
57	44,217	43,951	44,186	43,828	42,622	41,868	40,918	39,371	38,188
58	44,612	44,384	44,693	44,381	42,958	42,288	41,387	40,096	38,612
59	45,038	44,795	44,971	44,660	43,365	42,736	41,689	40,383	39,086
60	45,564	45,479	45,436	44,937	43,993	43,288	42,083	41,083	39,388
61	46,038	46,066	45,873	45,386	44,693	43,788	42,672	41,638	39,883
62	46,438	46,479	46,139	45,736	44,914	44,193	43,332	41,936	40,388
63	46,980	47,116	46,577	46,262	45,489	44,773	43,855	42,647	40,828
64	47,363	47,311	46,989	46,706	45,964	44,228	44,282	43,282	41,288
65	48,077	47,878	47,488	47,211	46,483	45,091	44,778	43,879	42,088
66	48,562	48,338	47,819	47,785	47,269	46,363	45,196	43,891	42,688
67	49,007	48,987	48,196	48,282	47,867	46,888	45,691	44,261	43,251
68	49,336	49,388	48,393	48,695	48,436	47,276	46,439	44,885	43,762
69	49,973	49,983	48,966	49,068	48,972	47,862	46,896	45,691	44,218
70	50,515	50,323	49,483	49,632	49,363	48,599	47,386	45,960	44,888
71	51,086	50,983	49,965	50,279	49,756	49,171	47,886	46,386	45,272
72	51,388	51,396	51,411	51,026	50,139	49,738	47,999	46,726	45,671
73	51,721	51,868	52,039	51,754	50,687	50,013	48,682	47,261	46,082
74	52,112	52,323	52,341	52,115	51,167	50,532	48,988	47,867	46,672
75	52,626	52,719	52,742	52,622	51,664	50,985	49,383	48,384	46,881
76	53,066	53,149	53,002	53,085	52,368	51,648	49,988	48,888	47,661
77	54,368	54,216	54,382	53,868	53,016	51,982	50,686	49,668	48,178
78	54,979	54,968	55,158	54,379	53,478	52,388	51,116	50,184	48,867
79	55,535	55,499	55,761	55,326	54,271	53,079	51,867	50,988	49,882
80	56,645	56,881	56,368	56,088	55,068	53,713	52,138	51,579	50,388
81	57,992	57,669	57,173	56,661	56,087	54,689	52,868	52,088	50,686
82	58,687	58,468	57,981	57,338	56,688	54,977	53,381	52,768	51,688
83	59,668	59,479	58,672	58,231	57,888	56,887	54,488	53,368	51,668
84	60,351	60,288	59,514	59,318	57,668	56,991	55,116	54,888	52,981
85	61,983	61,388	60,888	60,686	58,883	57,618	56,888	55,688	53,568
86	62,182	61,768	61,888	61,215	59,163	58,887	57,888	56,981	54,886
87	62,795	62,813	62,888	62,886	59,998	59,113	57,878	57,138	54,888
88	63,868	63,784	63,237	62,938	60,918	60,268	58,881	58,878	56,188
89	64,932	64,338	64,332	63,897	61,981	61,686	60,163	59,278	57,888
90	65,886	65,671	65,132	64,478	62,838	62,761	61,382	60,686	58,862
91	66,686	66,312	65,866	65,378	63,988	63,868	62,788	61,888	59,886
92	67,838	68,178	67,263	66,918	65,282	64,923	63,678	62,332	60,978
93	69,188	69,888	68,736	68,138	67,276	66,388	64,821	63,112	62,888
94	71,172	71,388	70,388	69,678	68,788	67,765	66,738	64,862	63,782
95	72,936	73,181	71,932	71,288	70,096	69,877	68,368	66,186	64,778
96	74,758	74,282	73,882	72,516	71,681	70,762	69,282	67,887	66,616
97	76,776	76,887	75,968	75,628	73,776	72,868	71,685	70,682	68,288
98	79,726	79,686	79,892	78,366	76,817	75,617	74,488	73,388	72,888
99	86,388	85,976	86,688	83,711	82,388	81,288	80,378	79,668	78,688
100	188,888	188,388	188,888	188,888	181,628	188,218	98,984	96,587	94,888
Mean	61,867	61,916	61,886	61,688	60,888	60,172	59,174	58,182	56,816
StDev	10,882	10,681	10,274	10,888	17,748	17,529	17,266	17,884	16,888

Appendix Table C-22: Simulated Annualized Income Cliffs, Cluster 8, Fixed Price Policy, Low Price Scenario, Brown Soils, Saskatchewan

Percentile	No + (Gain)								
No	65	70	75	80	85	90	95	100	105
1	(26,610)	(27,702)	(26,583)	(25,101)	(23,667)	(23,681)	(22,620)	(22,065)	(23,039)
2	(26,964)	(26,066)	(22,927)	(21,832)	(21,513)	(21,606)	(20,716)	(20,390)	(20,395)
3	(22,767)	(21,529)	(21,005)	(20,601)	(19,805)	(19,511)	(19,232)	(19,163)	(19,129)
4	(21,436)	(20,730)	(19,933)	(19,137)	(18,644)	(18,077)	(18,001)	(17,695)	(17,675)
5	(20,574)	(19,833)	(18,779)	(18,228)	(17,644)	(17,015)	(17,305)	(16,922)	(17,048)
6	(19,812)	(19,225)	(18,139)	(17,619)	(16,828)	(16,116)	(16,422)	(15,954)	(16,256)
7	(19,226)	(18,722)	(17,597)	(16,688)	(16,199)	(15,566)	(15,758)	(15,282)	(15,619)
8	(18,986)	(18,262)	(16,922)	(15,999)	(15,388)	(14,968)	(15,190)	(14,963)	(15,260)
9	(18,512)	(17,676)	(16,226)	(15,560)	(14,918)	(14,573)	(14,991)	(14,644)	(14,973)
10	(17,979)	(17,065)	(15,851)	(15,137)	(14,526)	(14,160)	(14,387)	(14,445)	(14,631)
11	(17,226)	(16,630)	(15,330)	(14,627)	(14,262)	(13,739)	(13,988)	(14,088)	(14,442)
12	(16,980)	(16,127)	(15,084)	(14,283)	(13,730)	(13,445)	(13,691)	(13,884)	(14,027)
13	(16,365)	(15,798)	(14,788)	(13,939)	(13,465)	(13,233)	(13,137)	(13,660)	(13,723)
14	(16,191)	(15,362)	(14,436)	(13,576)	(13,166)	(12,930)	(12,945)	(13,165)	(13,507)
15	(15,631)	(15,066)	(13,927)	(13,292)	(12,951)	(12,739)	(12,745)	(13,008)	(13,290)
16	(15,450)	(14,666)	(13,577)	(13,136)	(12,625)	(12,519)	(12,613)	(12,866)	(13,088)
17	(15,071)	(14,380)	(13,262)	(12,910)	(12,421)	(12,315)	(12,380)	(12,619)	(12,643)
18	(14,656)	(14,077)	(12,992)	(12,575)	(12,208)	(12,173)	(12,112)	(12,366)	(12,397)
19	(14,330)	(13,949)	(12,701)	(12,264)	(11,916)	(11,909)	(11,869)	(12,098)	(12,109)
20	(13,918)	(13,567)	(12,571)	(12,088)	(11,683)	(11,611)	(11,646)	(11,893)	(11,961)
21	(13,578)	(13,286)	(12,365)	(11,771)	(11,473)	(11,353)	(11,489)	(11,683)	(11,891)
22	(13,381)	(13,011)	(12,168)	(11,599)	(11,281)	(11,278)	(11,266)	(11,468)	(11,666)
23	(13,166)	(12,675)	(11,792)	(11,353)	(11,077)	(11,196)	(11,217)	(11,296)	(11,436)
24	(12,986)	(12,436)	(11,646)	(10,999)	(10,911)	(10,979)	(11,006)	(11,125)	(11,221)
25	(12,723)	(12,263)	(11,272)	(10,819)	(10,649)	(10,733)	(10,956)	(10,998)	(11,056)
26	(12,589)	(12,086)	(11,046)	(10,668)	(10,495)	(10,525)	(10,775)	(10,788)	(10,857)
27	(12,327)	(11,776)	(10,817)	(10,519)	(10,321)	(10,336)	(10,457)	(10,693)	(10,667)
28	(12,145)	(11,566)	(10,673)	(10,381)	(10,170)	(10,043)	(10,281)	(10,196)	(10,392)
29	(11,826)	(11,316)	(10,468)	(10,127)	(9,953)	(9,889)	(10,060)	(9,968)	(10,167)
30	(11,617)	(11,112)	(10,287)	(9,673)	(9,760)	(9,992)	(9,838)	(9,771)	(10,063)
31	(11,336)	(10,987)	(10,014)	(9,673)	(9,537)	(9,668)	(9,681)	(9,599)	(9,915)
32	(11,062)	(10,664)	(9,638)	(9,585)	(9,431)	(9,132)	(9,479)	(9,422)	(9,729)
33	(10,934)	(10,671)	(9,609)	(9,389)	(9,237)	(8,952)	(9,195)	(9,233)	(9,564)
34	(10,621)	(10,261)	(9,538)	(9,143)	(8,988)	(8,799)	(8,996)	(9,018)	(9,409)
35	(10,386)	(9,997)	(9,436)	(8,968)	(8,715)	(8,628)	(8,796)	(8,883)	(9,136)
36	(10,383)	(9,613)	(9,277)	(8,626)	(8,528)	(8,473)	(8,569)	(8,668)	(8,933)
37	(10,163)	(9,435)	(9,069)	(8,606)	(8,396)	(8,282)	(8,261)	(8,466)	(8,799)
38	(9,938)	(9,459)	(8,826)	(8,438)	(8,199)	(8,163)	(8,161)	(8,186)	(8,567)
39	(9,736)	(9,335)	(8,997)	(8,264)	(7,992)	(8,021)	(7,967)	(7,999)	(8,388)
40	(9,543)	(9,283)	(8,397)	(8,063)	(7,838)	(7,769)	(7,796)	(7,753)	(8,217)
41	(9,372)	(8,966)	(8,163)	(7,856)	(7,599)	(7,511)	(7,557)	(7,671)	(7,965)
42	(9,238)	(8,777)	(7,967)	(7,726)	(7,466)	(7,295)	(7,289)	(7,382)	(7,769)
43	(9,079)	(8,594)	(7,730)	(7,571)	(7,279)	(7,107)	(7,051)	(7,180)	(7,602)
44	(8,825)	(8,466)	(7,499)	(7,376)	(7,057)	(6,862)	(6,767)	(6,932)	(7,418)
45	(8,535)	(8,219)	(7,272)	(7,086)	(6,858)	(6,751)	(6,598)	(6,688)	(7,264)
46	(8,382)	(7,929)	(6,980)	(6,875)	(6,666)	(6,567)	(6,428)	(6,709)	(7,076)
47	(8,161)	(7,676)	(6,799)	(6,669)	(6,438)	(6,336)	(6,226)	(6,588)	(6,979)
48	(7,999)	(7,448)	(6,536)	(6,436)	(6,196)	(6,165)	(5,979)	(6,364)	(6,673)
49	(7,776)	(7,251)	(6,361)	(6,213)	(5,988)	(5,926)	(5,719)	(6,168)	(6,367)
50	(7,513)	(6,967)	(6,227)	(6,060)	(5,677)	(5,760)	(5,661)	(6,011)	(6,196)
51	(7,228)	(6,778)	(6,063)	(5,916)	(5,648)	(5,641)	(5,388)	(5,869)	(6,089)
52	(7,009)	(6,627)	(5,917)	(5,795)	(5,385)	(5,356)	(5,083)	(5,653)	(6,000)
53	(6,782)	(6,478)	(5,722)	(5,556)	(5,112)	(5,051)	(4,881)	(5,507)	(5,897)
54	(6,671)	(6,221)	(5,434)	(5,333)	(4,990)	(4,868)	(4,882)	(5,251)	(5,575)
55	(6,356)	(6,016)	(5,226)	(5,103)	(4,726)	(4,606)	(4,686)	(5,123)	(5,366)
56	(6,438)	(5,836)	(5,063)	(4,901)	(4,500)	(4,410)	(4,467)	(4,951)	(5,176)
57	(6,291)	(5,613)	(4,962)	(4,782)	(4,360)	(4,284)	(4,365)	(4,717)	(5,082)
58	(6,083)	(5,429)	(4,783)	(4,643)	(4,175)	(4,183)	(4,260)	(4,660)	(4,891)
59	(5,722)	(5,264)	(4,573)	(4,396)	(3,994)	(4,084)	(4,116)	(4,291)	(4,698)
60	(5,542)	(5,089)	(4,367)	(4,061)	(3,980)	(3,953)	(3,958)	(4,163)	(4,584)
61	(5,333)	(4,912)	(4,176)	(3,913)	(3,765)	(3,814)	(3,813)	(4,013)	(4,361)
62	(5,094)	(4,780)	(3,996)	(3,788)	(3,638)	(3,716)	(3,686)	(3,889)	(4,231)
63	(4,939)	(4,617)	(3,879)	(3,691)	(3,431)	(3,564)	(3,446)	(3,627)	(4,006)
64	(4,768)	(4,489)	(3,797)	(3,588)	(3,196)	(3,398)	(3,327)	(3,630)	(3,961)
65	(4,587)	(4,288)	(3,648)	(3,465)	(2,973)	(3,191)	(3,178)	(3,379)	(3,728)
66	(4,398)	(3,951)	(3,596)	(3,467)	(2,826)	(3,068)	(2,998)	(3,186)	(3,668)
67	(4,198)	(3,811)	(3,367)	(3,284)	(2,638)	(2,987)	(2,812)	(2,988)	(3,558)
68	(3,886)	(3,666)	(3,080)	(2,787)	(2,434)	(2,788)	(2,696)	(2,888)	(3,365)
69	(3,731)	(3,399)	(2,866)	(2,686)	(2,336)	(2,588)	(2,660)	(2,682)	(3,187)
70	(3,366)	(3,217)	(2,669)	(2,371)	(2,082)	(2,210)	(2,256)	(2,438)	(2,861)
71	(3,287)	(3,067)	(2,498)	(2,196)	(1,862)	(1,960)	(2,064)	(2,297)	(2,660)
72	(3,177)	(2,966)	(2,364)	(2,011)	(1,639)	(1,762)	(1,958)	(2,117)	(2,488)
73	(2,963)	(2,778)	(2,166)	(1,672)	(1,414)	(1,552)	(1,622)	(1,921)	(2,191)
74	(2,638)	(2,587)	(1,861)	(1,471)	(1,276)	(1,279)	(1,382)	(1,377)	(1,879)
75	(2,458)	(2,258)	(1,562)	(1,443)	(881)	(1,056)	(1,021)	(1,382)	(1,562)
76	(2,216)	(2,017)	(1,215)	(1,198)	(693)	(868)	(779)	(1,081)	(1,288)
77	(2,067)	(1,717)	(986)	(888)	(498)	(567)	(587)	(870)	(781)
78	(1,862)	(1,452)	(621)	(483)	(272)	(338)	(356)	(672)	(764)
79	(1,531)	(1,073)	(399)	(271)	(62)	(44)	38	(383)	(614)
80	(1,311)	(663)	(125)	68	279	166	286	(191)	(431)
81	(986)	(347)	288	328	761	388	511	169	(123)
82	(788)	17	711	729	1,098	677	762	888	311
83	(197)	817	1,086	1,217	1,361	1,181	1,086	891	917
84	189	663	1,467	1,668	1,779	1,573	1,368	1,128	773
85	663	891	1,877	1,965	1,998	1,878	1,759	1,397	1,139
86	1,881	1,438	2,128	2,399	2,258	2,084	2,089	1,838	1,387
87	1,331	1,767	2,311	2,668	2,363	2,388	2,319	2,137	1,667
88	1,784	2,251	2,986	3,062	2,838	2,748	2,636	2,663	1,995
89	2,372	2,808	3,433	3,619	3,254	3,163	2,918	2,882	2,213
90	2,935	3,267	3,915	3,838	3,457	3,438	3,393	3,273	2,681
91	3,619	3,636	4,325	4,351	4,288	4,242	4,088	3,638	3,187
92	3,862	4,264	4,663	4,777	4,667	4,635	4,372	3,979	3,657
93	4,457	4,988	5,168	5,254	5,134	5,271	4,851	4,438	4,139
94	5,139	5,663	5,838	6,011	6,068	5,868	5,575	5,014	4,625
95	6,218	6,311	6,685	6,713	6,985	6,985	6,468	5,889	5,360
96	7,273	7,176	7,711	8,065	7,973	7,887	7,478	6,588	5,973
97	8,322	8,489	8,727	9,139	8,938	8,668	8,161	7,295	6,681
98	9,629	9,880	10,267	10,174	10,441	10,221	9,625	8,878	8,284
99	11,984	11,790	12,252	12,373	12,083	11,862	11,264	10,863	10,162
100	16,281	16,049	16,279	16,179	16,142	15,819	15,498	14,986	14,894
Mean	(7,314)	(6,898)	(6,071)	(5,737)	(5,466)	(5,438)	(5,381)	(5,695)	(6,025)
Stdev	6,188	7,998	7,768	7,360	7,485	7,229	7,144	6,958	6,882

Appendix Table C-23: Simulated Annualized Income ($M's, Cluster 8, Fixed Price Policy, Base Price Scenario, Brown Soils, Saskatchewan

Percentile No	65	70	75	80	No = (mu) 85	90	95	100	105
1	(13,617)	(12,667)	(11,575)	(10,121)	(9,256)	(8,610)	(8,239)	(8,411)	(10,085)
2	(8,226)	(7,466)	(7,491)	(6,317)	(5,877)	(5,914)	(5,936)	(5,466)	(6,623)
3	(5,126)	(4,473)	(4,175)	(3,672)	(3,127)	(3,483)	(3,981)	(3,866)	(3,791)
4	(3,329)	(2,990)	(1,977)	(1,889)	(1,466)	(1,300)	(1,811)	(2,625)	(2,666)
5	(1,786)	(1,219)	(678)	(676)	(153)	198	(366)	(469)	(1,279)
6	(1,123)	(331)	369	668	772	1,616	888	775	(296)
7	(362)	226	1,452	1,993	1,796	2,387	1,787	1,685	726
8	349	1,478	2,086	2,956	2,919	3,157	2,651	2,381	1,652
9	1,232	2,058	2,844	4,067	3,798	3,858	3,257	3,187	2,173
10	1,833	2,624	3,706	4,649	4,261	4,588	4,102	3,962	2,787
11	2,721	3,467	4,696	5,152	4,988	5,119	4,526	3,999	3,191
12	3,131	4,218	5,083	5,732	5,587	5,626	4,882	4,372	3,648
13	4,282	4,691	5,979	6,143	6,082	6,082	5,888	4,987	3,886
14	4,737	5,113	6,572	6,512	6,668	6,381	5,588	4,963	4,188
15	5,233	5,685	6,917	6,869	6,945	6,918	5,918	5,218	4,381
16	5,745	5,945	7,316	7,387	7,264	6,981	6,188	5,479	4,888
17	6,284	6,436	7,736	7,613	7,781	7,888	6,345	5,981	5,468
18	6,798	6,988	8,086	7,988	8,088	7,971	6,886	6,239	5,788
19	7,698	7,368	8,368	8,292	8,346	7,678	7,386	6,667	6,938
20	7,934	8,888	8,612	8,786	8,727	7,917	7,762	6,988	6,659
21	8,342	8,317	8,981	9,888	9,888	8,388	8,881	7,263	6,888
22	8,536	8,645	9,253	9,384	9,488	8,888	8,264	7,688	7,379
23	8,853	9,888	9,312	9,763	9,986	8,988	8,448	8,872	7,863
24	9,126	9,319	9,939	10,861	9,981	9,378	8,788	8,436	7,981
25	9,371	9,617	10,086	10,437	10,139	9,534	9,868	8,778	8,218
26	9,765	10,887	10,373	10,838	10,384	10,017	9,334	9,888	8,666
27	10,178	10,672	10,992	11,186	10,651	10,384	9,988	9,387	8,678
28	10,668	10,868	11,884	11,388	10,868	10,698	10,188	9,888	8,985
29	11,012	11,188	11,668	11,773	11,281	11,116	10,652	10,888	9,138
30	11,388	11,665	11,868	12,888	11,513	11,388	10,981	10,688	9,362
31	11,662	11,739	12,218	12,672	11,878	11,731	11,271	10,742	9,868
32	11,784	12,187	12,668	12,688	12,286	12,113	11,678	11,888	9,986
33	12,131	12,388	12,658	12,883	12,583	12,488	11,688	11,272	10,372
34	12,515	12,688	12,917	13,863	12,887	12,651	11,963	11,688	10,535
35	12,773	12,986	13,325	13,388	13,886	12,886	12,165	11,971	10,763
36	13,888	13,281	13,668	13,781	13,425	13,218	12,673	12,181	11,888
37	13,288	13,613	13,967	13,973	13,651	13,398	12,819	12,387	11,319
38	13,536	13,781	14,315	14,279	13,913	13,842	13,213	12,636	11,767
39	13,737	14,883	14,688	14,618	14,273	14,138	13,561	13,873	12,168
40	14,863	14,353	14,776	14,883	14,577	14,278	13,886	13,388	12,419
41	14,388	14,644	15,886	15,146	14,743	14,588	14,268	13,686	12,662
42	14,645	14,991	15,388	15,325	15,867	14,882	14,525	13,878	12,958
43	15,143	15,281	15,718	15,576	15,368	15,895	14,761	13,938	13,387
44	15,384	15,581	15,981	15,838	15,728	15,387	14,982	14,388	13,566
45	15,631	15,288	16,238	16,136	16,883	15,588	15,287	14,439	13,886
46	15,986	16,145	16,685	16,442	16,388	15,818	15,581	14,691	13,873
47	16,131	16,639	16,888	16,676	16,382	16,181	15,911	14,966	14,862
48	16,372	16,879	17,138	16,888	16,982	16,782	16,382	15,387	14,386
49	16,781	16,871	17,388	17,885	17,147	17,881	16,639	15,572	14,585
50	16,947	17,186	17,628	17,668	17,488	17,212	17,888	15,687	14,988
51	17,276	17,413	18,838	17,788	17,776	17,488	17,288	16,163	15,281
52	17,672	17,798	18,227	18,136	17,988	17,638	17,381	16,387	15,388
53	17,988	18,894	18,436	18,488	18,288	17,831	17,716	16,628	15,813
54	18,198	18,338	18,791	18,677	18,339	18,882	18,888	16,911	16,888
55	18,388	18,731	19,888	19,166	18,788	18,388	18,239	17,239	16,239
56	18,737	19,888	19,387	19,646	19,895	18,633	18,518	17,888	16,588
57	19,888	19,266	19,679	19,788	19,288	18,881	18,788	17,742	16,862
58	19,388	19,636	20,888	20,188	19,388	19,138	18,988	17,862	17,136
59	19,688	19,781	20,387	20,288	19,883	19,282	19,136	18,263	17,438
60	19,923	19,957	20,688	20,888	20,888	19,638	19,388	18,388	17,688
61	20,113	20,237	20,791	20,677	20,438	19,977	19,538	18,581	17,888
62	20,385	20,556	21,811	21,887	20,887	20,188	19,747	19,238	18,184
63	20,571	20,621	21,263	21,338	21,113	20,661	19,883	19,435	18,481
64	20,888	21,863	21,636	21,668	21,273	20,778	20,176	19,788	18,662
65	21,138	21,288	21,888	21,728	21,586	20,988	20,338	19,888	18,988
66	21,638	21,643	21,918	21,988	21,888	21,287	20,728	20,162	19,888
67	21,776	21,988	22,867	22,736	21,843	21,636	20,988	20,388	19,364
68	22,888	22,186	22,216	22,388	22,177	21,886	21,288	20,773	19,788
69	22,381	22,629	22,618	23,686	22,662	21,882	21,371	20,988	20,273
70	22,653	22,839	22,888	23,888	22,881	22,336	21,888	21,338	20,361
71	23,938	23,888	22,987	23,231	22,884	22,661	22,338	21,373	20,778
72	23,388	23,287	23,378	23,887	23,175	23,818	22,688	21,918	21,889
73	23,661	23,488	23,868	23,788	23,388	23,378	22,782	22,388	21,448
74	23,938	23,917	24,388	24,888	24,818	23,885	23,112	22,688	21,888
75	24,168	24,216	24,888	24,373	24,434	23,988	23,436	22,881	22,388
76	24,387	24,487	25,888	24,685	24,888	24,188	23,867	23,118	22,688
77	24,688	25,386	25,481	25,388	25,138	24,345	24,388	23,388	22,896
78	25,337	25,676	25,888	25,886	25,886	24,888	24,388	23,388	23,881
79	25,686	26,888	26,381	26,143	25,388	25,388	24,881	24,888	23,378
80	26,878	26,686	26,828	26,377	26,328	25,788	25,387	24,388	23,388
81	26,638	26,878	27,284	27,888	26,617	26,881	25,688	24,888	24,888
82	27,665	27,587	27,778	27,578	27,842	26,868	26,168	25,388	24,688
83	27,682	27,988	28,186	27,972	27,361	26,988	26,513	25,888	25,388
84	28,151	28,283	28,913	28,727	28,185	27,263	26,988	26,387	25,118
85	28,632	28,722	29,521	29,374	28,668	28,878	27,284	26,665	25,778
86	29,286	29,273	30,883	29,988	29,388	28,384	28,888	27,688	26,388
87	29,683	29,867	30,867	30,388	29,638	29,883	28,888	27,886	26,688
88	30,867	30,663	31,864	30,578	30,171	29,888	29,862	28,685	27,178
89	31,238	31,291	31,663	31,311	31,885	30,888	29,538	28,988	27,638
90	31,763	32,168	32,823	31,884	31,613	31,886	30,638	29,888	28,388
91	32,662	32,761	32,886	32,167	32,388	31,868	31,888	30,788	28,988
92	33,388	33,668	33,861	33,376	33,188	32,868	31,831	30,778	29,618
93	34,388	34,688	34,388	34,288	33,778	33,655	32,618	31,788	29,218
94	35,668	35,513	35,288	35,881	34,675	34,131	33,638	32,573	31,388
95	36,767	36,367	36,188	36,167	35,788	35,188	34,638	33,388	32,688
96	38,238	37,913	37,686	37,738	37,188	36,517	35,738	34,178	33,888
97	40,388	39,738	39,881	39,588	38,881	37,981	36,918	35,668	35,181
98	41,911	42,788	41,988	41,881	41,887	40,666	38,881	37,718	36,888
99	44,238	44,384	44,818	44,388	43,586	42,768	41,778	40,811	39,686
100	51,388	51,686	50,368	50,388	49,778	49,288	48,288	46,811	45,188
Mean	17,388	17,383	17,966	18,888	17,812	17,642	16,988	16,288	15,628
Stdev	11,718	11,538	11,288	11,867	10,878	10,888	10,618	10,388	10,287

Appendix Table C-24: Simulated Annualized Income CDFs, Chapter 8, Fixed Price Policy, High Price Scenario, Brown Soils, Saskatchewan

Percentile	Mu = (mu)								
Sd	60	70	75	80	85	90	95	100	105
1	1,337	2,296	3,012	4,040	4,830	5,992	5,557	5,000	2,912
2	6,319	5,960	6,195	9,261	9,713	9,865	9,044	9,117	7,605
3	12,030	12,177	12,612	12,832	13,045	12,972	11,256	11,305	10,950
4	14,661	15,714	15,091	15,364	15,374	15,350	14,304	13,143	13,130
5	16,472	17,160	17,644	18,031	18,036	17,300	16,201	15,515	14,472
6	17,350	18,134	18,672	18,040	18,030	18,444	17,595	17,446	15,677
7	18,704	19,612	20,112	20,671	19,713	20,359	19,012	18,365	17,139
8	19,923	20,770	21,100	21,000	21,149	21,300	20,303	19,330	18,451
9	20,000	21,040	22,000	23,110	22,500	22,157	21,132	20,740	19,120
10	21,707	22,414	23,275	24,120	23,073	22,000	21,777	21,343	19,775
11	22,031	23,331	24,342	24,707	23,000	23,040	22,450	21,720	20,340
12	24,005	24,379	25,194	25,606	24,500	24,000	23,000	22,332	21,173
13	24,790	25,060	25,790	26,003	25,314	24,044	23,300	22,671	21,000
14	25,043	25,571	26,720	26,376	26,115	25,263	24,004	23,005	21,907
15	26,120	26,215	27,376	27,251	26,000	25,600	24,354	23,300	22,210
16	26,503	26,605	27,000	27,742	27,105	26,130	24,004	23,711	22,743
17	27,510	27,337	28,215	28,076	27,000	26,673	25,330	24,300	23,130
18	28,106	28,251	28,047	28,673	28,140	27,770	25,943	24,763	23,300
19	28,000	28,721	29,002	29,003	28,731	27,031	26,530	25,130	23,900
20	29,131	29,000	29,525	29,000	28,000	27,770	26,070	25,040	24,700
21	29,304	29,304	30,019	29,004	29,270	28,270	27,314	26,121	25,201
22	29,004	30,130	30,344	30,000	29,722	28,303	27,700	26,956	25,010
23	30,544	30,005	30,611	30,503	30,015	29,017	28,152	27,653	26,004
24	30,910	31,130	30,902	30,000	30,315	29,700	28,367	27,000	26,002
25	31,340	31,716	31,301	31,300	30,713	30,000	29,302	28,316	27,203
26	32,044	32,130	31,422	32,002	31,311	30,716	29,000	28,770	27,000
27	32,421	32,577	32,425	32,376	31,700	31,006	30,130	29,310	27,942
28	33,003	32,973	33,003	33,003	32,130	31,317	30,010	29,710	28,004
29	33,442	33,402	33,395	33,402	33,003	31,044	31,006	30,230	28,001
30	33,996	33,767	34,001	34,143	33,000	32,450	31,440	30,571	29,162
31	34,310	34,271	34,344	34,375	33,403	33,004	31,010	30,970	29,304
32	34,622	34,030	34,003	34,000	33,000	33,510	32,204	31,002	29,000
33	35,200	35,230	35,302	35,243	34,257	33,000	32,713	31,776	30,170
34	35,700	35,611	35,447	35,002	34,000	34,000	33,007	32,130	30,040
35	36,003	35,950	35,101	35,042	35,000	34,270	33,200	32,530	30,670
36	36,312	36,170	36,300	36,204	35,300	34,324	33,041	33,000	31,110
37	36,637	36,450	36,774	36,000	35,700	34,000	34,000	33,320	31,000
38	37,145	37,005	37,195	37,000	36,000	35,330	34,376	33,101	31,910
39	37,003	37,401	37,030	37,305	36,436	35,770	34,005	33,010	32,373
40	37,000	38,005	38,055	37,567	36,767	36,107	35,312	34,007	32,744
41	38,304	38,300	38,400	37,993	37,001	36,005	35,712	34,370	33,114
42	38,703	38,611	38,732	38,301	37,000	37,045	35,967	34,000	33,004
43	38,950	39,130	38,900	38,000	37,703	37,479	36,000	35,005	33,000
44	39,471	39,401	39,005	38,091	38,210	37,012	36,971	35,007	34,307
45	39,057	39,672	39,760	39,206	38,000	38,005	37,303	35,005	34,000
46	40,161	40,300	40,116	39,721	39,316	38,452	37,760	36,230	35,000
47	40,571	40,470	40,513	40,100	39,731	38,101	38,206	36,572	35,316
48	40,073	40,000	40,904	40,446	40,214	39,325	38,712	36,900	35,303
49	41,303	41,141	41,206	40,776	40,000	39,053	38,990	37,211	35,000
50	41,712	41,002	41,676	41,471	40,777	40,000	39,303	37,000	36,001
51	42,000	41,000	42,161	41,720	41,161	40,303	39,770	38,000	36,304
52	42,300	42,100	42,300	42,100	41,000	40,000	40,000	38,610	36,970
53	42,570	42,300	42,000	42,440	41,005	40,003	40,300	38,725	37,303
54	43,003	43,007	43,175	42,900	42,000	41,234	40,700	39,072	37,730
55	43,430	43,372	43,513	43,307	42,370	41,573	41,110	39,430	38,170
56	43,720	43,007	43,720	43,300	42,730	41,004	41,000	39,970	38,500
57	43,941	43,000	44,000	44,079	43,000	42,101	41,500	40,231	38,770
58	44,300	44,300	44,000	44,572	43,473	42,004	42,001	40,711	39,000
59	44,077	44,742	45,004	44,003	43,767	42,003	42,342	41,001	39,321
60	45,004	45,110	45,452	45,207	44,105	43,202	42,002	41,300	39,000
61	45,030	45,340	45,000	45,304	44,007	43,730	43,000	41,675	40,171
62	45,007	45,701	46,004	45,040	44,001	44,000	43,200	42,004	40,000
63	46,300	46,137	46,300	46,000	45,270	44,301	43,502	42,300	41,000
64	46,674	46,370	46,000	46,330	45,740	44,049	43,951	42,705	41,405
65	46,940	46,076	46,000	46,001	46,007	44,000	44,310	43,307	41,000
66	47,301	47,004	47,000	46,007	46,277	45,174	44,019	43,004	41,901
67	47,000	47,743	47,304	47,302	46,004	45,005	45,000	44,132	42,300
68	48,167	48,310	47,610	47,074	46,973	45,042	45,300	44,430	43,000
69	48,370	48,031	47,900	48,000	47,300	46,306	45,731	44,773	43,300
70	48,616	48,001	48,300	48,271	47,700	47,000	46,100	45,177	43,004
71	49,100	49,130	48,000	48,714	48,130	47,430	46,300	45,300	44,130
72	49,701	49,300	49,130	49,170	48,000	48,000	47,000	46,000	44,000
73	50,270	50,001	49,671	49,536	48,774	48,415	47,102	46,439	45,300
74	50,000	50,300	50,430	50,000	49,432	48,773	47,775	46,703	45,700
75	51,000	51,100	51,113	50,300	49,967	49,100	48,143	47,000	46,101
76	51,730	51,000	51,630	50,775	50,300	49,525	48,730	47,445	46,314
77	52,004	52,003	51,051	51,430	50,945	50,044	49,100	47,730	46,000
78	52,513	52,000	52,204	52,070	51,301	50,170	49,330	48,300	47,100
79	53,143	53,317	53,170	52,300	51,000	50,430	50,000	48,010	47,430
80	53,000	53,730	53,007	53,200	52,000	51,111	50,000	49,300	47,837
81	54,170	54,274	54,307	53,732	52,700	51,720	50,100	49,005	48,200
82	55,004	54,101	54,000	54,213	53,300	52,307	51,401	50,203	49,004
83	55,601	55,300	55,344	55,045	53,005	52,043	52,131	50,732	49,710
84	56,120	56,270	56,130	56,142	54,452	53,007	52,037	51,200	50,100
85	56,701	56,710	57,000	56,000	55,130	53,700	53,434	52,005	50,007
86	57,700	57,300	57,002	57,710	55,673	54,370	54,001	52,911	51,007
87	58,410	58,004	58,440	58,274	56,304	55,710	54,700	53,510	51,041
88	59,211	59,100	59,070	58,726	57,304	56,477	55,400	54,201	52,300
89	60,100	60,020	59,002	59,073	58,304	57,311	56,304	55,107	52,979
90	61,004	61,014	60,102	59,002	59,000	58,130	57,400	55,704	53,700
91	61,020	61,770	61,123	61,001	60,302	59,203	58,204	56,430	54,032
92	62,001	62,000	62,007	62,307	61,304	60,440	59,107	57,041	55,340
93	64,100	64,073	63,000	63,007	62,231	61,304	60,000	58,701	56,703
94	65,007	65,300	64,000	64,373	63,300	62,303	61,002	59,000	57,700
95	67,271	66,000	65,010	65,000	64,000	64,000	62,100	61,304	59,020
96	69,311	68,000	67,014	67,770	66,000	65,043	64,300	62,400	61,203
97	71,007	70,000	70,017	69,737	68,000	67,037	65,700	63,041	62,530
98	74,300	74,000	73,047	73,000	71,000	70,530	68,304	66,000	65,373
99	77,307	77,303	77,030	76,000	76,003	73,434	72,214	70,700	69,000
100	84,007	84,741	84,000	84,470	83,717	83,013	81,003	79,000	79,402
Mean	61,007	61,901	62,000	61,042	61,006	60,307	59,435	58,304	56,000
Stdev	15,002	15,191	14,910	14,000	14,437	14,250	14,107	13,040	13,710

Appendix Table C-25: Simulated Annualized Income CDFs, Cluster C, No Price Intervention, Low Price Scenario, Brown Soils, Saskatchewan

Percentile	% = (mm)								
No	65	70	75	80	85	90	95	100	105
1	(27,867)	(26,674)	(26,380)	(25,625)	(25,395)	(25,706)	(25,364)	(26,600)	(26,857)
2	(25,854)	(24,364)	(23,763)	(23,048)	(23,020)	(22,744)	(22,698)	(22,606)	(21,720)
3	(24,140)	(23,625)	(22,686)	(21,984)	(21,627)	(21,290)	(21,212)	(20,562)	(20,517)
4	(23,206)	(22,532)	(21,630)	(21,234)	(20,521)	(20,275)	(20,110)	(19,622)	(20,015)
5	(22,206)	(21,663)	(21,076)	(20,458)	(19,787)	(19,635)	(19,538)	(19,351)	(19,375)
6	(21,431)	(21,064)	(20,399)	(19,675)	(19,105)	(19,000)	(19,060)	(18,991)	(18,868)
7	(21,000)	(20,626)	(19,952)	(19,009)	(18,727)	(18,619)	(18,388)	(18,236)	(18,362)
8	(20,380)	(19,743)	(19,136)	(18,630)	(18,276)	(18,073)	(17,969)	(17,709)	(18,094)
9	(19,876)	(19,198)	(18,792)	(18,179)	(17,868)	(17,618)	(17,661)	(17,256)	(17,572)
10	(19,333)	(18,928)	(18,284)	(17,751)	(17,381)	(17,286)	(17,161)	(16,998)	(17,191)
11	(18,969)	(18,576)	(17,930)	(17,388)	(16,995)	(16,762)	(16,702)	(16,536)	(16,864)
12	(18,562)	(18,222)	(17,695)	(17,111)	(16,619)	(16,256)	(16,280)	(16,256)	(16,447)
13	(18,171)	(17,885)	(16,996)	(16,791)	(16,216)	(16,007)	(16,051)	(15,967)	(16,068)
14	(17,826)	(17,360)	(16,576)	(16,426)	(16,000)	(15,728)	(15,695)	(15,712)	(15,827)
15	(17,663)	(16,867)	(16,282)	(16,226)	(15,746)	(15,617)	(15,616)	(15,602)	(15,573)
16	(17,288)	(16,577)	(16,068)	(16,011)	(15,661)	(15,062)	(15,117)	(15,270)	(15,261)
17	(16,828)	(16,317)	(15,791)	(15,662)	(15,166)	(14,855)	(14,958)	(14,681)	(15,180)
18	(16,606)	(16,218)	(15,632)	(15,262)	(14,925)	(14,625)	(14,683)	(14,588)	(14,901)
19	(16,173)	(15,992)	(15,661)	(15,129)	(14,681)	(14,436)	(14,473)	(14,398)	(14,665)
20	(15,972)	(15,623)	(15,227)	(14,865)	(14,486)	(14,217)	(14,106)	(14,064)	(14,440)
21	(15,725)	(15,606)	(14,991)	(14,617)	(14,289)	(13,962)	(13,977)	(13,885)	(14,252)
22	(15,546)	(15,289)	(14,648)	(14,373)	(13,926)	(13,728)	(13,736)	(13,667)	(13,968)
23	(15,312)	(14,913)	(14,283)	(14,108)	(13,701)	(13,512)	(13,564)	(13,560)	(13,788)
24	(15,054)	(14,684)	(14,097)	(13,838)	(13,512)	(13,307)	(13,280)	(13,280)	(13,507)
25	(14,796)	(14,561)	(13,888)	(13,581)	(13,188)	(13,014)	(13,288)	(13,142)	(13,382)
26	(14,497)	(14,251)	(13,696)	(13,315)	(12,917)	(12,844)	(12,990)	(13,067)	(13,080)
27	(14,263)	(14,096)	(13,268)	(13,067)	(12,744)	(12,712)	(12,668)	(12,685)	(12,943)
28	(14,057)	(13,888)	(13,101)	(12,899)	(12,583)	(12,388)	(12,631)	(12,513)	(12,766)
29	(13,862)	(13,663)	(12,792)	(12,635)	(12,429)	(12,287)	(12,461)	(12,332)	(12,586)
30	(13,706)	(13,478)	(12,638)	(12,389)	(12,226)	(12,150)	(12,270)	(12,182)	(12,385)
31	(13,437)	(13,267)	(12,316)	(12,195)	(12,126)	(11,979)	(12,122)	(11,986)	(12,170)
32	(13,266)	(13,090)	(12,186)	(12,011)	(11,960)	(11,771)	(11,918)	(11,838)	(11,966)
33	(12,933)	(12,786)	(11,918)	(11,680)	(11,783)	(11,660)	(11,668)	(11,612)	(11,787)
34	(12,735)	(12,567)	(11,777)	(11,716)	(11,576)	(11,388)	(11,516)	(11,401)	(11,613)
35	(12,436)	(12,219)	(11,317)	(11,444)	(11,388)	(11,212)	(11,338)	(11,388)	(11,388)
36	(12,267)	(12,084)	(11,267)	(11,256)	(11,107)	(11,083)	(11,181)	(11,196)	(11,282)
37	(12,112)	(11,652)	(11,099)	(11,026)	(10,864)	(10,863)	(11,026)	(11,083)	(11,201)
38	(11,978)	(11,438)	(10,851)	(10,796)	(10,668)	(10,719)	(10,786)	(10,988)	(11,019)
39	(11,679)	(11,286)	(10,588)	(10,564)	(10,388)	(10,459)	(10,477)	(10,732)	(10,888)
40	(11,467)	(11,025)	(10,381)	(10,257)	(10,011)	(10,198)	(10,312)	(10,533)	(10,673)
41	(11,292)	(10,776)	(10,167)	(10,097)	(9,973)	(9,988)	(10,171)	(10,353)	(10,429)
42	(11,071)	(10,446)	(9,932)	(9,768)	(9,768)	(9,711)	(9,964)	(10,172)	(10,392)
43	(10,860)	(10,267)	(9,736)	(9,595)	(9,598)	(9,510)	(9,786)	(10,010)	(10,179)
44	(10,612)	(10,088)	(9,388)	(9,461)	(9,362)	(9,253)	(9,570)	(9,760)	(9,986)
45	(10,463)	(9,988)	(9,410)	(9,293)	(9,211)	(9,086)	(9,388)	(9,438)	(9,737)
46	(10,156)	(9,667)	(9,192)	(9,068)	(8,921)	(8,779)	(9,025)	(9,068)	(9,519)
47	(9,988)	(9,478)	(8,967)	(8,894)	(8,738)	(8,669)	(8,791)	(8,995)	(9,268)
48	(9,668)	(9,267)	(8,788)	(8,716)	(8,587)	(8,458)	(8,573)	(8,788)	(9,044)
49	(9,538)	(9,236)	(8,598)	(8,481)	(8,413)	(8,288)	(8,368)	(8,578)	(8,787)
50	(9,277)	(9,068)	(8,429)	(8,362)	(8,215)	(8,161)	(8,186)	(8,368)	(8,579)
51	(9,152)	(8,921)	(8,252)	(8,288)	(7,984)	(7,958)	(8,088)	(8,196)	(8,438)
52	(9,088)	(8,738)	(8,123)	(8,081)	(7,868)	(7,738)	(7,887)	(7,993)	(8,232)
53	(8,878)	(8,485)	(7,988)	(7,986)	(7,764)	(7,588)	(7,731)	(7,864)	(8,087)
54	(8,667)	(8,438)	(7,748)	(7,739)	(7,511)	(7,458)	(7,573)	(7,781)	(7,882)
55	(8,488)	(8,158)	(7,638)	(7,553)	(7,388)	(7,387)	(7,433)	(7,588)	(7,788)
56	(8,199)	(7,888)	(7,389)	(7,373)	(7,198)	(7,188)	(7,288)	(7,421)	(7,678)
57	(7,957)	(7,688)	(7,198)	(7,096)	(6,866)	(6,988)	(7,088)	(7,219)	(7,337)
58	(7,739)	(7,373)	(7,016)	(6,825)	(6,687)	(6,815)	(6,915)	(7,078)	(7,098)
59	(7,356)	(7,163)	(6,768)	(6,575)	(6,357)	(6,669)	(6,731)	(6,877)	(6,896)
60	(7,112)	(6,906)	(6,575)	(6,368)	(6,157)	(6,471)	(6,588)	(6,728)	(6,738)
61	(7,063)	(6,762)	(6,271)	(6,189)	(5,932)	(6,288)	(6,381)	(6,487)	(6,518)
62	(7,022)	(6,391)	(6,088)	(5,952)	(5,738)	(6,088)	(6,156)	(6,316)	(6,318)
63	(6,756)	(6,488)	(5,988)	(5,767)	(5,561)	(5,988)	(6,088)	(6,111)	(6,188)
64	(6,563)	(6,182)	(5,712)	(5,381)	(5,372)	(5,368)	(5,782)	(5,988)	(6,066)
65	(6,446)	(5,965)	(5,468)	(5,152)	(5,138)	(5,296)	(5,518)	(5,688)	(5,916)
66	(6,188)	(5,756)	(5,312)	(5,861)	(4,916)	(5,286)	(5,332)	(5,611)	(5,688)
67	(5,868)	(5,488)	(5,898)	(4,886)	(4,673)	(4,962)	(5,988)	(5,176)	(5,281)
68	(5,672)	(5,217)	(4,888)	(4,763)	(4,497)	(4,668)	(4,731)	(4,996)	(5,212)
69	(5,388)	(5,888)	(4,618)	(4,218)	(4,262)	(4,288)	(4,617)	(4,788)	(5,888)
70	(5,898)	(4,827)	(4,257)	(4,188)	(3,962)	(3,911)	(4,885)	(4,988)	(4,738)
71	(4,662)	(4,665)	(4,838)	(3,818)	(3,677)	(3,668)	(3,797)	(4,321)	(4,367)
72	(4,388)	(4,486)	(3,432)	(3,578)	(3,386)	(3,388)	(3,468)	(4,888)	(4,288)
73	(4,412)	(4,168)	(3,678)	(3,257)	(3,812)	(3,158)	(3,238)	(3,768)	(4,813)
74	(4,166)	(3,828)	(3,328)	(2,991)	(2,768)	(2,967)	(3,885)	(3,468)	(3,782)
75	(3,988)	(3,689)	(3,282)	(2,898)	(2,568)	(2,781)	(2,775)	(3,176)	(3,228)
76	(3,598)	(3,158)	(2,918)	(2,685)	(2,288)	(2,527)	(2,427)	(2,668)	(3,262)
77	(3,353)	(2,958)	(2,615)	(2,377)	(2,888)	(2,966)	(2,568)	(2,513)	(2,887)
78	(3,896)	(2,728)	(2,436)	(1,988)	(1,668)	(1,868)	(1,867)	(2,227)	(2,617)
79	(2,693)	(2,689)	(2,871)	(1,613)	(1,368)	(1,377)	(1,596)	(1,968)	(2,268)
80	(2,382)	(2,887)	(1,738)	(1,337)	(1,132)	(1,138)	(1,362)	(1,736)	(1,936)
81	(2,887)	(1,889)	(1,322)	(1,886)	(911)	(798)	(1,889)	(1,468)	(1,672)
82	(1,716)	(1,628)	(1,819)	(861)	(688)	(618)	(764)	(1,156)	(1,388)
83	(1,497)	(1,288)	(888)	(577)	(468)	(338)	(468)	(923)	(1,115)
84	(1,195)	(961)	(688)	(378)	(88)	11	(187)	(688)	(862)
85	(988)	(696)	(132)	66	222	268	179	(36)	(313)
86	(687)	(386)	162	252	478	488	522	278	(71)
87	(119)	68	612	977	1,888	988	996	647	388
88	441	662	1,276	1,888	1,868	1,862	1,328	736	536
89	797	998	1,736	1,988	1,628	1,868	1,721	1,127	748
90	1,886	1,438	2,188	2,276	2,187	1,961	2,126	1,628	1,267
91	1,364	1,878	2,588	2,648	2,363	2,338	2,566	2,128	1,678
92	2,813	2,788	2,868	2,828	2,628	2,488	2,127	2,878	2,112
93	2,538	2,648	3,336	3,343	3,831	3,338	3,896	3,862	2,388
94	3,458	3,388	4,256	4,891	4,873	4,178	3,966	3,638	3,236
95	4,136	4,688	4,688	4,823	4,787	4,688	4,568	4,277	3,986
96	4,871	5,422	5,783	5,163	5,536	5,268	4,986	4,952	4,666
97	5,966	6,621	6,775	6,912	6,668	6,882	5,895	5,283	5,611
98	7,568	8,388	8,262	8,166	7,732	7,321	7,187	6,368	6,988
99	10,786	10,611	10,621	10,898	11,887	10,772	10,888	9,115	9,166
100	14,966	14,486	14,652	14,398	13,536	13,966	13,748	12,966	12,617
Mean	(9,858)	(8,675)	(8,152)	(7,886)	(7,667)	(7,667)	(7,756)	(7,867)	(8,186)
Stdev	6,861	7,972	7,868	7,783	7,643	7,536	7,436	7,219	7,188

Appendix Table C-26: Simulated Annualized Income CDFs, Cluster C, No Price Intervention, Base Price Scenario, Brown Soils, Saskatchewan

Percentile No	60	70	75	80	85	90	95	100	105
1	(16,071)	(17,091)	(17,629)	(16,932)	(15,616)	(15,363)	(14,790)	(14,369)	(15,289)
2	(13,966)	(13,531)	(12,663)	(12,668)	(12,869)	(12,638)	(12,388)	(12,139)	(12,251)
3	(11,666)	(11,798)	(11,201)	(10,864)	(10,663)	(10,317)	(10,571)	(10,669)	(10,609)
4	(10,388)	(10,263)	(9,899)	(9,521)	(9,396)	(9,086)	(9,152)	(9,449)	(9,622)
5	(9,536)	(9,123)	(8,857)	(8,362)	(7,911)	(7,717)	(8,168)	(8,389)	(8,662)
6	(8,705)	(8,311)	(8,169)	(7,656)	(7,082)	(6,617)	(7,086)	(7,229)	(7,725)
7	(7,995)	(7,719)	(7,195)	(6,681)	(6,669)	(6,286)	(6,276)	(6,522)	(6,986)
8	(7,151)	(6,981)	(6,266)	(5,638)	(5,762)	(5,383)	(5,662)	(5,827)	(6,263)
9	(6,382)	(6,269)	(5,288)	(5,029)	(5,068)	(4,977)	(5,169)	(5,369)	(6,189)
10	(5,869)	(5,536)	(4,538)	(4,286)	(4,483)	(4,383)	(4,777)	(4,988)	(5,736)
11	(5,377)	(5,061)	(3,936)	(3,961)	(3,963)	(3,888)	(4,466)	(4,669)	(5,898)
12	(4,614)	(4,267)	(3,392)	(3,423)	(3,369)	(3,383)	(4,068)	(4,375)	(4,688)
13	(3,978)	(3,788)	(3,178)	(3,258)	(2,826)	(3,088)	(3,316)	(3,708)	(3,996)
14	(3,672)	(3,386)	(2,729)	(2,638)	(2,326)	(2,671)	(2,767)	(3,163)	(3,666)
15	(2,823)	(3,088)	(2,278)	(2,266)	(1,782)	(2,166)	(2,316)	(2,987)	(3,699)
16	(2,317)	(2,678)	(2,086)	(1,717)	(1,288)	(1,717)	(2,128)	(2,228)	(2,787)
17	(2,057)	(2,118)	(1,683)	(1,138)	(917)	(1,266)	(1,988)	(1,983)	(2,388)
18	(1,762)	(1,388)	(978)	(562)	(336)	(1,016)	(1,785)	(1,886)	(1,988)
19	(1,368)	(1,277)	(616)	(263)	(342)	(712)	(1,669)	(1,266)	(1,781)
20	(1,282)	(979)	(183)	167	(3)	(618)	(386)	(319)	(1,388)
21	(744)	(458)	173	538	291	(23)	(76)	(318)	(936)
22	(366)	(37)	368	613	616	616	222	138	(616)
23	19	618	963	1,132	991	866	361	618	(186)
24	316	723	1,258	1,389	1,256	1,087	688	686	88
25	966	1,121	1,618	1,562	1,476	1,386	1,284	988	388
26	1,319	1,577	2,116	2,073	1,969	1,889	1,618	1,151	688
27	1,686	1,889	2,576	2,397	2,386	2,211	1,736	1,689	687
28	1,916	2,369	3,638	2,953	2,665	2,681	2,158	1,767	1,889
29	2,256	2,686	3,121	3,365	2,861	2,687	2,366	2,158	1,456
30	2,675	2,991	3,386	3,386	3,869	2,960	2,683	2,616	1,763
31	3,168	3,271	3,767	3,778	3,466	3,256	2,991	2,579	2,083
32	3,677	3,756	4,287	4,086	3,787	3,566	3,056	2,677	2,366
33	3,717	3,876	4,625	4,273	3,998	3,736	3,288	3,128	2,566
34	4,116	4,262	4,629	4,366	4,288	4,091	3,579	3,288	2,616
35	4,317	4,365	4,844	4,613	4,451	4,251	3,923	3,537	3,056
36	4,588	4,637	5,066	5,161	4,728	4,361	4,218	3,736	3,321
37	4,796	5,027	5,323	5,259	5,122	5,088	4,686	3,988	3,571
38	5,013	5,262	5,551	5,365	5,636	5,226	4,863	4,228	3,728
39	5,267	5,563	5,799	5,936	5,728	5,395	5,067	4,695	3,886
40	5,637	5,981	6,136	6,132	5,915	5,619	5,288	4,788	4,066
41	5,968	6,288	6,329	6,331	6,189	5,956	5,456	5,128	4,366
42	6,287	6,522	6,637	6,662	6,363	6,163	5,965	5,465	4,668
43	6,545	6,663	6,851	6,871	6,673	6,617	5,762	5,289	4,618
44	6,853	6,981	7,099	7,073	6,961	6,788	6,073	5,992	5,066
45	7,085	7,192	7,287	7,297	7,171	6,998	6,327	6,011	5,631
46	7,386	7,533	7,555	7,646	7,426	7,193	6,687	6,186	5,682
47	7,665	7,836	7,877	7,763	7,656	7,413	6,881	6,383	5,986
48	8,023	8,188	8,056	7,937	7,986	7,586	7,158	6,663	6,266
49	8,312	8,438	8,263	8,110	8,167	7,776	7,371	6,932	6,552
50	8,698	8,768	8,488	8,461	8,331	7,977	7,588	7,177	6,883
51	8,788	8,965	8,626	8,935	8,662	8,266	7,698	7,638	7,092
52	8,886	9,135	9,167	9,288	8,825	8,387	7,836	7,988	7,284
53	9,076	9,376	9,388	9,388	8,972	8,673	8,067	7,811	7,536
54	9,291	9,651	9,681	9,731	9,288	8,976	8,277	8,117	7,778
55	9,566	9,863	9,981	10,137	9,698	9,168	8,576	8,367	7,981
56	9,978	10,138	10,288	10,423	9,867	9,636	8,867	8,861	8,369
57	10,278	10,636	10,367	10,647	10,087	9,738	9,198	8,976	8,635
58	10,682	10,763	11,088	10,922	10,314	10,083	9,636	9,361	8,986
59	10,886	11,087	11,388	11,256	10,788	10,616	9,865	9,565	9,181
60	11,282	11,356	11,386	11,668	11,138	10,728	10,168	9,733	9,496
61	11,618	11,667	11,816	11,866	11,697	11,066	10,576	10,166	9,786
62	11,667	11,986	12,136	12,136	11,932	11,268	11,086	10,388	9,966
63	11,978	12,287	12,423	12,668	12,221	11,778	11,366	10,961	10,169
64	12,138	12,626	12,716	12,931	12,386	11,997	11,762	11,362	10,362
65	12,336	12,666	13,088	12,886	12,638	12,468	12,073	11,667	10,732
66	12,775	13,187	13,366	13,139	12,866	12,681	12,266	11,866	11,084
67	13,168	13,366	13,386	13,387	13,216	13,083	12,666	12,165	11,386
68	13,562	13,818	13,967	13,686	13,481	13,277	12,871	12,662	11,538
69	13,936	14,187	14,282	13,888	13,983	13,648	13,086	12,763	11,788
70	14,288	14,386	14,766	14,218	14,388	13,766	13,378	12,862	12,087
71	14,521	14,748	14,976	14,316	14,562	14,166	13,788	13,187	12,335
72	14,797	15,088	15,268	14,682	14,886	14,442	13,898	13,446	12,638
73	15,251	15,366	15,523	15,287	15,251	14,781	14,366	13,688	12,887
74	15,532	15,686	15,825	15,363	15,886	15,086	14,635	14,087	13,946
75	15,968	15,888	16,136	15,843	15,988	15,682	15,188	14,296	13,388
76	16,425	16,371	16,638	16,173	16,276	15,988	15,588	14,368	13,687
77	16,856	16,867	16,888	16,686	16,543	16,238	15,886	14,886	14,082
78	16,912	17,063	16,988	16,918	16,766	16,513	16,186	15,171	14,388
79	17,333	17,442	17,368	17,281	17,086	16,848	16,488	15,686	14,635
80	18,221	17,676	17,838	17,886	17,616	17,291	16,845	15,837	15,312
81	18,521	18,676	18,389	18,368	17,918	17,386	16,821	16,199	15,768
82	18,775	18,889	18,638	18,676	18,218	17,868	17,387	16,562	16,166
83	19,126	19,311	19,266	19,276	18,793	18,179	17,618	17,172	16,381
84	19,666	19,898	19,787	19,377	19,286	18,715	18,262	17,618	17,088
85	20,276	20,278	20,178	19,983	19,676	19,286	18,761	18,088	17,648
86	20,868	20,826	20,788	20,568	20,271	19,887	19,187	18,331	17,868
87	21,998	21,388	21,686	21,381	20,776	20,373	19,998	19,162	18,388
88	21,673	21,895	22,187	22,221	21,686	20,988	20,736	19,788	18,676
89	22,783	22,838	22,699	22,885	21,889	21,618	21,173	20,686	19,216
90	23,536	23,576	23,615	23,627	22,386	22,778	21,788	20,983	19,836
91	24,437	24,686	24,145	23,978	23,883	23,618	22,311	21,686	20,731
92	25,888	24,988	24,773	24,338	23,988	23,868	22,967	22,236	21,376
93	25,888	25,816	25,288	25,288	25,881	24,362	23,828	22,886	22,363
94	26,567	26,619	26,351	26,681	25,576	25,278	24,681	23,516	23,627
95	27,316	27,886	27,171	26,696	26,367	25,889	25,886	24,136	23,639
96	28,238	28,867	28,222	28,216	27,393	26,988	26,385	25,818	24,686
97	29,887	29,253	29,232	29,637	28,916	28,286	27,668	26,788	26,141
98	31,672	31,388	31,238	31,696	30,782	30,188	29,696	28,796	27,971
99	35,338	35,283	34,671	35,862	34,988	34,888	34,213	32,682	30,636
100	44,715	44,616	42,786	42,263	41,744	40,676	39,648	37,756	37,388
Mean	8,666	9,051	9,268	9,291	9,096	8,888	8,482	7,931	7,326
Stdev	11,219	11,262	10,956	10,826	10,583	10,436	10,296	10,626	9,988

Appendix Table C-27: Simulated Annualized Income Cliffs, Cluster C, No Price Intervention, High Price Scenario, Brown Soils, Saskatchewan

Percentile No.	65	70	75	80	85	90	95	100	105
1	(7,326)	(6,577)	(6,526)	(5,426)	(5,695)	(6,703)	(6,075)	(5,571)	(6,479)
2	(1,307)	(699)	(257)	(313)	(621)	(269)	(763)	(1,717)	(1,689)
3	1,573	307	1,106	2,153	1,905	1,930	1,410	936	219
4	2,296	2,670	3,206	3,008	3,326	3,266	2,562	1,791	1,293
5	3,670	4,056	4,041	4,092	4,772	4,110	3,663	3,167	2,129
6	4,379	5,256	5,732	5,794	5,749	5,079	4,731	4,469	3,298
7	5,653	5,974	6,696	6,573	6,666	6,179	5,672	5,208	4,637
8	6,726	6,949	7,998	7,451	7,254	6,916	6,066	6,066	5,539
9	7,347	7,651	7,699	8,053	7,971	7,910	6,986	6,884	6,166
10	8,063	8,634	8,514	8,977	8,885	8,686	7,708	7,953	6,938
11	8,667	9,055	9,383	9,736	9,613	9,154	8,519	8,152	7,625
12	9,493	10,188	10,256	10,093	10,166	9,713	9,143	8,363	7,739
13	9,960	10,674	10,764	10,868	10,789	10,364	9,779	9,061	8,338
14	10,648	10,930	11,216	11,675	11,005	10,862	10,261	9,953	8,778
15	11,117	11,576	11,728	11,960	11,339	11,446	10,856	10,011	9,311
16	11,801	12,010	12,057	12,364	12,135	11,886	11,206	10,333	9,774
17	12,297	12,496	12,607	12,708	12,628	12,319	11,657	10,772	10,330
18	12,765	12,960	12,871	13,209	13,071	12,909	12,089	11,163	10,634
19	13,193	13,366	13,271	13,717	13,536	13,374	12,556	11,667	11,260
20	13,647	13,865	13,809	14,291	14,060	13,661	12,980	11,958	11,714
21	14,013	14,253	14,360	14,736	14,586	14,025	13,360	12,469	12,023
22	14,979	14,787	15,109	15,280	15,162	14,386	13,741	13,062	12,381
23	15,606	15,280	15,638	15,916	15,577	15,167	14,160	13,618	12,706
24	16,066	15,872	16,021	16,316	15,972	15,576	14,696	13,828	13,052
25	16,609	16,230	16,521	16,662	16,230	15,939	15,184	14,227	13,397
26	16,873	16,638	16,938	17,125	16,526	16,144	15,596	14,598	13,956
27	17,257	17,274	17,170	17,573	16,930	16,523	16,060	15,121	14,266
28	17,707	17,669	17,730	17,784	17,243	16,779	16,535	15,469	14,758
29	18,257	18,139	18,139	18,213	17,743	17,266	16,611	15,827	15,209
30	18,681	18,673	18,396	18,716	18,144	17,626	17,085	16,331	15,702
31	19,010	19,196	19,325	19,154	18,515	18,052	17,561	16,756	16,054
32	19,363	19,726	19,952	19,668	18,770	18,326	17,838	17,168	16,464
33	19,698	20,225	20,730	20,110	19,160	18,713	18,088	17,466	16,896
34	19,961	20,676	21,221	20,627	19,622	19,119	18,279	17,906	17,139
35	20,360	20,979	21,606	20,972	20,142	19,603	18,687	18,281	17,511
36	20,736	21,332	21,975	21,402	20,738	20,047	19,161	18,682	17,909
37	21,106	21,706	22,371	21,741	21,082	20,525	19,743	19,086	18,289
38	21,615	22,021	22,699	22,063	21,362	20,947	20,044	19,618	18,667
39	21,930	22,296	22,883	22,377	21,623	21,497	20,372	19,869	19,092
40	22,139	22,705	23,097	22,651	22,177	21,760	20,706	20,137	19,381
41	22,579	23,081	23,463	22,993	22,632	21,967	21,114	20,533	19,619
42	22,998	23,362	23,738	23,286	22,729	22,184	21,433	20,963	20,023
43	23,474	23,669	24,043	23,651	23,043	22,598	21,706	21,342	20,520
44	23,891	23,974	24,436	23,953	23,458	22,982	22,064	21,637	20,761
45	24,322	24,219	24,631	24,146	23,667	23,239	22,628	21,974	21,066
46	24,573	24,662	25,115	24,380	23,736	23,525	23,058	22,389	21,384
47	24,856	24,899	25,395	24,958	23,951	23,729	23,206	22,612	21,708
48	25,086	24,958	25,606	25,276	24,230	23,925	23,583	22,966	21,962
49	25,672	25,267	25,988	25,611	24,386	24,181	23,859	23,288	22,191
50	26,122	25,666	26,163	25,918	24,581	24,672	24,116	23,527	22,666
51	26,474	26,136	26,574	26,199	25,118	24,758	24,339	23,726	22,929
52	26,843	26,535	26,719	26,413	25,790	25,076	24,681	24,068	23,407
53	27,252	26,999	27,089	26,882	26,264	25,376	25,161	24,485	23,716
54	27,535	27,263	27,389	27,138	26,560	25,777	25,517	24,815	23,986
55	27,934	27,574	27,536	27,451	26,853	26,102	25,788	25,158	24,287
56	28,172	27,988	27,796	27,858	27,201	26,616	26,066	25,617	24,588
57	28,434	28,252	28,162	28,196	27,538	27,077	26,422	25,686	24,994
58	28,670	28,531	28,588	28,497	27,872	27,538	26,792	25,834	25,064
59	28,956	28,766	28,913	28,988	28,288	27,821	27,060	26,262	25,397
60	29,286	29,163	29,414	29,233	28,588	28,096	27,389	26,738	25,861
61	29,784	29,645	29,917	29,635	29,090	28,536	27,986	26,958	26,088
62	30,195	29,966	30,315	29,963	29,610	28,684	27,965	27,117	26,281
63	30,645	30,369	30,701	30,264	29,764	29,088	28,365	27,388	26,571
64	30,946	30,781	31,069	30,936	29,988	29,436	28,632	27,784	26,933
65	31,362	31,270	31,469	30,866	30,277	29,716	29,089	28,111	27,169
66	31,686	31,579	31,898	31,268	30,664	30,088	29,345	28,488	27,568
67	32,426	32,008	32,176	31,661	31,080	30,362	29,668	28,879	27,779
68	32,611	32,399	32,497	32,138	31,390	30,615	29,866	29,125	28,071
69	32,988	32,988	32,738	32,638	31,864	31,167	30,331	29,421	28,388
70	33,125	33,160	33,189	32,990	32,286	31,361	31,095	29,686	28,868
71	33,526	33,511	33,668	33,322	32,705	31,913	31,439	30,161	29,452
72	34,070	33,982	33,779	33,662	33,270	32,367	32,066	30,787	29,782
73	34,475	34,437	34,248	34,087	33,642	32,781	32,460	31,119	30,269
74	34,987	34,730	34,784	34,443	33,941	33,241	32,774	31,580	30,643
75	35,384	35,073	35,048	34,862	34,283	33,982	33,446	32,212	31,088
76	36,037	35,588	35,381	35,289	34,737	34,341	33,981	32,729	31,386
77	36,568	36,212	36,188	35,867	35,288	34,888	34,469	33,158	31,726
78	37,117	36,668	36,528	36,321	35,987	35,682	34,882	33,703	32,389
79	37,767	37,388	36,963	36,954	36,599	36,418	35,232	34,388	32,615
80	38,287	38,077	37,638	37,388	36,631	36,836	35,708	34,776	33,691
81	38,758	38,638	37,984	37,885	36,988	37,276	36,188	35,010	34,186
82	39,668	38,981	38,662	38,368	37,745	37,885	36,538	35,386	34,638
83	39,638	39,638	39,367	38,966	38,272	37,733	36,958	35,656	34,988
84	40,288	40,015	39,985	39,535	38,882	38,251	37,685	36,388	35,695
85	41,088	40,738	40,388	40,026	39,553	38,887	38,326	37,087	36,982
86	41,562	41,386	41,019	40,738	40,397	39,669	38,989	37,885	36,278
87	42,086	42,068	42,026	41,399	41,089	40,668	39,686	38,395	36,978
88	42,973	42,957	42,587	42,231	41,866	40,918	40,266	39,277	38,438
89	43,919	43,511	43,617	43,094	42,883	42,088	40,963	39,688	38,196
90	44,752	44,473	44,238	44,125	43,313	42,923	42,121	40,396	39,841
91	45,946	45,736	45,388	45,013	44,666	44,076	43,638	41,687	40,197
92	46,886	46,888	46,886	46,263	45,578	45,467	44,363	42,810	41,288
93	47,798	48,078	47,778	47,388	46,628	45,699	44,138	42,678	43,788
94	48,888	49,387	49,268	48,883	48,316	47,529	46,786	45,886	43,962
95	50,201	50,928	50,638	50,723	49,683	48,686	48,868	46,778	45,788
96	52,226	51,978	52,961	51,986	51,261	49,888	49,888	48,168	47,841
97	54,223	53,988	54,881	53,381	53,181	52,381	50,796	50,888	48,388
98	56,386	57,862	55,672	55,812	56,986	56,151	52,616	53,889	50,852
99	59,676	59,686	59,168	58,718	58,116	57,852	56,611	55,162	56,889
100	68,658	68,168	67,883	66,688	66,367	68,766	62,762	61,126	59,998
Mean	26,381	26,628	26,728	26,161	26,888	25,513	25,671	24,822	23,868
Stdev	14,288	14,728	13,883	13,716	13,612	13,662	13,362	13,898	12,828

Appendix Table C-33: Simulated annualized income CDFs, Cluster C, Truncated Prices, Low Price Scenario, Brown Soils, Saskatchewan

Percentile	% = (net)								
No	65	70	75	80	85	90	95	100	105
1	(25,981)	(25,144)	(24,444)	(23,840)	(23,099)	(22,481)	(22,985)	(21,718)	(21,445)
2	(23,237)	(22,496)	(22,071)	(21,842)	(20,720)	(20,067)	(19,048)	(20,888)	(20,168)
3	(21,264)	(21,144)	(20,282)	(19,611)	(19,077)	(18,429)	(18,728)	(18,517)	(18,972)
4	(20,526)	(20,178)	(19,239)	(18,969)	(18,286)	(17,988)	(17,616)	(17,728)	(17,796)
5	(20,053)	(19,597)	(18,675)	(18,183)	(17,688)	(17,478)	(17,126)	(17,163)	(17,271)
6	(19,491)	(19,686)	(18,322)	(17,901)	(17,418)	(16,858)	(16,886)	(16,760)	(16,731)
7	(19,066)	(18,443)	(17,443)	(17,072)	(16,966)	(16,622)	(16,369)	(16,288)	(16,353)
8	(18,365)	(17,991)	(17,196)	(16,737)	(16,713)	(16,288)	(16,029)	(15,917)	(16,088)
9	(18,220)	(17,564)	(16,728)	(16,426)	(16,266)	(15,966)	(15,660)	(15,628)	(15,728)
10	(17,998)	(17,060)	(16,326)	(16,063)	(15,977)	(15,588)	(15,225)	(15,181)	(15,388)
11	(17,536)	(16,758)	(16,019)	(15,763)	(15,616)	(15,174)	(14,888)	(14,852)	(15,131)
12	(16,952)	(16,443)	(15,788)	(15,371)	(15,149)	(14,739)	(14,569)	(14,399)	(14,981)
13	(16,615)	(16,052)	(15,468)	(15,066)	(14,713)	(14,461)	(14,366)	(14,481)	(14,823)
14	(16,316)	(15,761)	(15,191)	(14,775)	(14,462)	(14,177)	(14,163)	(14,283)	(14,616)
15	(15,989)	(15,386)	(14,899)	(14,448)	(14,196)	(13,918)	(13,953)	(14,073)	(14,436)
16	(15,699)	(15,278)	(14,662)	(14,162)	(13,867)	(13,662)	(13,681)	(13,908)	(14,218)
17	(15,419)	(15,066)	(14,413)	(13,915)	(13,637)	(13,461)	(13,486)	(13,771)	(14,023)
18	(15,206)	(14,711)	(14,156)	(13,762)	(13,486)	(13,275)	(13,442)	(13,643)	(13,899)
19	(14,998)	(14,384)	(13,931)	(13,642)	(13,397)	(13,198)	(13,285)	(13,499)	(13,752)
20	(14,788)	(14,136)	(13,718)	(13,469)	(13,216)	(13,011)	(13,098)	(13,186)	(13,643)
21	(14,618)	(13,966)	(13,388)	(13,218)	(13,089)	(12,762)	(12,869)	(13,086)	(13,397)
22	(14,229)	(13,888)	(13,236)	(13,013)	(12,853)	(12,562)	(12,666)	(12,762)	(12,988)
23	(13,996)	(13,573)	(13,064)	(12,869)	(12,536)	(12,395)	(12,531)	(12,588)	(12,798)
24	(13,677)	(13,286)	(12,678)	(12,618)	(12,269)	(12,213)	(12,364)	(12,378)	(12,588)
25	(13,477)	(13,083)	(12,782)	(12,364)	(11,988)	(12,129)	(12,362)	(12,162)	(12,396)
26	(13,413)	(12,988)	(12,581)	(12,156)	(11,788)	(11,782)	(12,069)	(11,966)	(12,173)
27	(13,217)	(12,768)	(12,272)	(11,987)	(11,683)	(11,576)	(11,821)	(11,628)	(12,083)
28	(13,077)	(12,627)	(12,012)	(11,667)	(11,433)	(11,478)	(11,279)	(11,688)	(11,871)
29	(12,982)	(12,466)	(11,889)	(11,486)	(11,213)	(11,316)	(11,416)	(11,278)	(11,686)
30	(12,736)	(12,264)	(11,661)	(11,268)	(11,068)	(11,161)	(11,223)	(11,216)	(11,492)
31	(12,586)	(12,083)	(11,486)	(11,128)	(10,988)	(11,006)	(11,069)	(11,089)	(11,367)
32	(12,399)	(11,988)	(11,223)	(10,883)	(10,737)	(10,891)	(10,858)	(10,828)	(11,183)
33	(12,160)	(11,738)	(11,084)	(10,624)	(10,517)	(10,701)	(10,636)	(10,677)	(11,088)
34	(12,085)	(11,595)	(10,872)	(10,619)	(10,373)	(10,466)	(10,488)	(10,514)	(10,868)
35	(11,867)	(11,419)	(10,672)	(10,286)	(10,201)	(10,338)	(10,232)	(10,352)	(10,652)
36	(11,665)	(11,266)	(10,474)	(10,238)	(10,011)	(10,183)	(10,023)	(10,286)	(10,468)
37	(11,466)	(11,069)	(10,338)	(10,089)	(9,995)	(9,966)	(9,980)	(10,089)	(10,286)
38	(11,263)	(10,980)	(10,165)	(9,989)	(9,767)	(9,767)	(9,782)	(9,866)	(10,139)
39	(11,063)	(10,798)	(9,998)	(9,677)	(9,539)	(9,666)	(9,636)	(9,719)	(10,038)
40	(10,869)	(10,595)	(9,832)	(9,438)	(9,329)	(9,444)	(9,443)	(9,579)	(9,866)
41	(10,696)	(10,413)	(9,636)	(9,306)	(9,216)	(9,281)	(9,281)	(9,436)	(9,668)
42	(10,466)	(10,168)	(9,438)	(9,135)	(8,988)	(9,128)	(9,096)	(9,259)	(9,570)
43	(10,306)	(10,011)	(9,169)	(9,006)	(8,668)	(8,999)	(8,979)	(9,132)	(9,435)
44	(10,123)	(9,853)	(9,088)	(8,838)	(8,544)	(8,837)	(8,853)	(8,971)	(9,238)
45	(9,976)	(9,653)	(8,935)	(8,693)	(8,418)	(8,653)	(8,717)	(8,851)	(9,098)
46	(9,776)	(9,441)	(8,833)	(8,564)	(8,212)	(8,473)	(8,577)	(8,760)	(8,956)
47	(9,566)	(9,308)	(8,696)	(8,375)	(8,125)	(8,299)	(8,438)	(8,653)	(8,784)
48	(9,366)	(9,186)	(8,583)	(8,188)	(7,998)	(8,112)	(8,273)	(8,473)	(8,699)
49	(9,138)	(8,988)	(8,363)	(8,077)	(7,988)	(7,981)	(8,127)	(8,299)	(8,372)
50	(8,987)	(8,781)	(8,288)	(7,938)	(7,797)	(7,863)	(7,998)	(8,143)	(8,198)
51	(8,816)	(8,563)	(8,062)	(7,713)	(7,668)	(7,711)	(7,789)	(7,988)	(8,064)
52	(8,562)	(8,388)	(7,869)	(7,587)	(7,388)	(7,627)	(7,666)	(7,836)	(7,966)
53	(8,366)	(8,173)	(7,643)	(7,438)	(7,436)	(7,538)	(7,536)	(7,663)	(7,888)
54	(8,206)	(7,998)	(7,516)	(7,263)	(7,308)	(7,399)	(7,378)	(7,538)	(7,644)
55	(8,077)	(7,827)	(7,381)	(7,288)	(7,165)	(7,282)	(7,256)	(7,399)	(7,562)
56	(7,879)	(7,638)	(7,308)	(7,088)	(6,943)	(6,973)	(7,118)	(7,213)	(7,484)
57	(7,760)	(7,438)	(7,131)	(6,888)	(6,818)	(6,756)	(6,898)	(7,057)	(7,307)
58	(7,553)	(7,388)	(6,981)	(6,787)	(6,666)	(6,597)	(6,676)	(6,916)	(7,178)
59	(7,368)	(7,143)	(6,775)	(6,538)	(6,528)	(6,466)	(6,572)	(6,797)	(6,931)
60	(7,215)	(6,968)	(6,612)	(6,368)	(6,389)	(6,333)	(6,441)	(6,642)	(6,888)
61	(7,067)	(6,864)	(6,436)	(6,257)	(6,262)	(6,175)	(6,261)	(6,433)	(6,768)
62	(6,960)	(6,737)	(6,258)	(6,095)	(6,052)	(6,043)	(6,088)	(6,253)	(6,564)
63	(6,823)	(6,628)	(6,011)	(5,896)	(5,875)	(5,812)	(5,868)	(6,052)	(6,328)
64	(6,668)	(6,438)	(5,781)	(5,717)	(5,761)	(5,615)	(5,644)	(5,793)	(6,229)
65	(6,548)	(6,257)	(5,596)	(5,564)	(5,561)	(5,363)	(5,489)	(5,582)	(5,978)
66	(6,328)	(6,068)	(5,476)	(5,466)	(5,382)	(5,217)	(5,265)	(5,388)	(5,776)
67	(6,188)	(5,882)	(5,264)	(5,288)	(5,232)	(5,029)	(5,188)	(5,188)	(5,596)
68	(6,086)	(5,781)	(5,088)	(5,082)	(4,856)	(4,888)	(4,728)	(4,988)	(5,436)
69	(5,889)	(5,526)	(4,981)	(4,888)	(4,582)	(4,576)	(4,585)	(4,676)	(5,271)
70	(5,619)	(5,263)	(4,718)	(4,663)	(4,488)	(4,376)	(4,285)	(4,496)	(5,186)
71	(5,382)	(5,089)	(4,528)	(4,483)	(4,254)	(4,187)	(4,187)	(4,368)	(4,988)
72	(5,228)	(4,978)	(4,417)	(4,273)	(4,057)	(4,188)	(4,181)	(4,191)	(4,633)
73	(5,066)	(4,688)	(4,385)	(4,085)	(3,898)	(3,937)	(3,981)	(4,086)	(4,388)
74	(4,725)	(4,388)	(4,139)	(3,898)	(3,662)	(3,778)	(3,782)	(3,937)	(4,136)
75	(4,668)	(4,261)	(3,898)	(3,688)	(3,588)	(3,679)	(3,688)	(3,766)	(3,937)
76	(4,299)	(4,157)	(3,668)	(3,488)	(3,387)	(3,438)	(3,476)	(3,598)	(3,768)
77	(4,082)	(3,966)	(3,638)	(3,316)	(3,187)	(3,258)	(3,261)	(3,438)	(3,588)
78	(3,786)	(3,788)	(3,272)	(3,088)	(2,988)	(3,086)	(3,062)	(3,268)	(3,411)
79	(3,563)	(3,381)	(3,086)	(2,817)	(2,788)	(2,827)	(2,812)	(3,096)	(3,218)
80	(3,387)	(3,195)	(2,786)	(2,688)	(2,588)	(2,658)	(2,588)	(2,765)	(3,166)
81	(3,188)	(2,988)	(2,456)	(2,388)	(2,288)	(2,258)	(2,388)	(2,581)	(2,921)
82	(2,792)	(2,679)	(2,382)	(2,181)	(1,912)	(1,958)	(2,178)	(2,376)	(2,648)
83	(2,563)	(2,388)	(2,057)	(1,981)	(1,636)	(1,788)	(1,868)	(2,187)	(2,452)
84	(2,291)	(2,178)	(1,826)	(1,636)	(1,482)	(1,698)	(1,661)	(1,973)	(2,238)
85	(2,087)	(1,888)	(1,568)	(1,388)	(1,196)	(1,388)	(1,488)	(1,648)	(2,058)
86	(1,838)	(1,688)	(1,268)	(1,018)	(877)	(1,081)	(1,188)	(1,388)	(1,816)
87	(1,661)	(1,338)	(962)	(797)	(598)	(768)	(765)	(1,071)	(1,425)
88	(1,177)	(891)	(688)	(511)	(325)	(385)	(488)	(788)	(1,143)
89	(865)	(568)	(388)	(36)	(9)	(177)	(382)	(577)	(862)
90	(389)	(88)	91	438	389	592	1	(195)	(562)
91	(166)	167	457	845	685	827	616	11	(288)
92	315	861	1,382	1,384	1,242	1,382	1,215	618	98
93	1,119	1,468	1,787	1,987	1,818	1,888	1,779	888	583
94	1,772	2,087	2,358	2,384	2,436	2,588	2,388	1,438	1,143
95	2,388	2,587	2,888	2,781	2,888	2,772	2,588	2,888	1,787
96	2,888	3,871	3,678	3,421	3,583	3,483	3,335	2,888	2,681
97	3,988	4,213	4,788	4,881	4,483	4,742	4,588	3,648	3,672
98	5,388	5,388	6,888	6,812	6,331	5,982	5,637	5,872	4,782
99	7,388	7,751	7,918	8,728	8,283	8,388	8,888	7,888	6,478
100	11,686	11,961	11,638	11,725	11,638	11,345	11,198	10,378	9,888
Mean	(8,863)	(8,688)	(7,984)	(7,788)	(7,538)	(7,311)	(7,368)	(7,716)	(7,988)
Stdev	6,847	6,747	6,623	6,698	6,611	6,376	6,188	6,821	5,966

Appendix Table C-29: Simulated annualized income CDFs, Cluster C, Truncated Prices, Same Price Scenario, Brown Soils, Saskatchewan

Percentile	No = (ac)								
%	60	70	75	80	85	90	95	100	105
1	(15,722)	(15,316)	(14,663)	(13,462)	(12,963)	(13,095)	(12,364)	(11,978)	(12,625)
2	(11,330)	(11,277)	(10,980)	(10,799)	(9,787)	(9,386)	(9,607)	(9,598)	(9,823)
3	(9,531)	(8,667)	(8,715)	(8,833)	(7,735)	(7,586)	(7,813)	(8,130)	(8,592)
4	(7,781)	(7,486)	(6,972)	(6,739)	(6,594)	(6,255)	(7,029)	(7,068)	(7,379)
5	(6,307)	(6,563)	(5,726)	(5,384)	(5,667)	(5,628)	(5,960)	(6,253)	(6,629)
6	(5,653)	(5,788)	(5,066)	(4,439)	(4,899)	(4,761)	(5,366)	(5,267)	(5,778)
7	(5,065)	(4,452)	(4,329)	(3,951)	(3,964)	(2,916)	(4,387)	(4,596)	(5,126)
8	(4,586)	(4,097)	(3,689)	(3,467)	(3,337)	(3,628)	(3,836)	(4,075)	(4,368)
9	(4,191)	(3,788)	(3,038)	(3,116)	(2,638)	(3,149)	(3,126)	(3,491)	(3,911)
10	(3,529)	(3,166)	(2,637)	(2,465)	(2,366)	(2,466)	(2,725)	(2,966)	(3,499)
11	(3,062)	(2,669)	(2,095)	(1,999)	(1,685)	(2,092)	(2,365)	(2,679)	(3,232)
12	(2,479)	(2,255)	(1,689)	(1,444)	(1,530)	(1,716)	(2,026)	(2,386)	(2,898)
13	(2,025)	(1,776)	(1,213)	(1,086)	(1,169)	(1,371)	(1,713)	(1,976)	(2,454)
14	(1,480)	(1,357)	(786)	(663)	(762)	(963)	(1,366)	(1,728)	(2,071)
15	(1,196)	(863)	(366)	(199)	(468)	(729)	(836)	(1,290)	(1,689)
16	(868)	(414)	103	69	114	(364)	(539)	(963)	(1,360)
17	(427)	43	396	296	472	382	(192)	(611)	(1,195)
18	(178)	334	636	369	635	621	381	(76)	(723)
19	235	661	909	1,038	895	971	618	388	(326)
20	461	985	1,060	1,412	1,229	1,299	997	962	(1)
21	844	1,233	1,468	1,709	1,569	1,681	1,159	891	372
22	1,054	1,739	1,668	2,060	2,029	2,086	1,467	1,081	529
23	1,482	1,795	2,374	2,573	2,668	2,255	1,744	1,337	748
24	1,836	2,017	2,617	2,833	2,843	2,585	2,153	1,619	1,085
25	2,146	2,277	2,832	2,972	2,969	2,985	2,471	1,888	1,214
26	2,444	2,539	3,069	3,180	3,112	3,068	2,656	2,169	1,667
27	2,707	2,855	3,228	3,410	3,275	3,132	2,916	2,461	1,667
28	2,866	3,133	3,462	3,610	3,413	3,305	3,186	2,607	1,926
29	3,195	3,410	3,665	3,823	3,581	3,544	3,277	2,838	2,195
30	3,360	3,603	3,868	4,049	3,813	3,610	3,516	3,032	2,415
31	3,539	3,858	4,163	4,288	4,095	4,044	3,762	3,381	2,667
32	3,720	4,119	4,385	4,456	4,439	4,284	3,953	3,612	3,029
33	4,044	4,386	4,647	4,651	4,621	4,496	4,085	3,783	3,396
34	4,337	4,647	4,793	4,908	4,848	4,701	4,397	4,072	3,568
35	4,574	4,908	5,067	5,261	4,967	4,846	4,538	4,279	3,703
36	4,855	5,125	5,331	5,564	5,264	5,062	4,747	4,504	3,834
37	5,112	5,440	5,498	5,762	5,577	5,260	4,967	4,702	3,955
38	5,363	5,651	5,639	6,002	5,838	5,512	5,193	4,837	4,169
39	5,599	5,837	6,005	6,271	6,015	5,628	5,395	5,060	4,448
40	5,781	6,039	6,269	6,577	6,288	5,850	5,555	5,267	4,670
41	6,044	6,266	6,561	6,823	6,535	6,095	5,725	5,464	4,837
42	6,311	6,497	6,813	7,127	6,822	6,350	6,001	5,597	5,116
43	6,575	6,736	7,110	7,291	7,035	6,737	6,379	5,833	5,361
44	6,817	6,919	7,388	7,562	7,315	6,881	6,634	6,060	5,598
45	6,996	7,199	7,585	7,793	7,644	7,212	6,913	6,369	5,796
46	7,261	7,466	7,866	8,031	7,991	7,436	7,114	6,526	6,086
47	7,617	7,675	8,099	8,215	7,831	7,681	7,253	6,743	6,193
48	7,906	7,866	8,264	8,443	8,118	7,843	7,488	6,938	6,339
49	8,200	8,151	8,475	8,727	8,298	8,089	7,636	7,152	6,566
50	8,566	8,429	8,661	8,918	8,506	8,300	7,926	7,415	6,838
51	8,799	8,793	9,001	9,068	8,614	8,567	8,193	7,635	7,080
52	9,063	8,977	9,307	9,239	8,821	8,778	8,367	7,867	7,312
53	9,258	9,288	9,574	9,399	9,224	8,939	8,589	8,019	7,563
54	9,396	9,491	9,668	9,696	9,438	9,137	8,796	8,318	7,737
55	9,637	9,767	9,957	9,986	9,665	9,357	9,050	8,685	7,943
56	9,854	9,988	10,143	10,088	9,992	9,556	9,250	8,881	8,151
57	9,998	10,079	10,326	10,234	10,264	9,739	9,526	9,088	8,413
58	10,226	10,223	10,525	10,390	10,388	9,900	9,818	9,269	8,670
59	10,433	10,448	10,683	10,722	10,435	10,233	10,032	9,398	8,872
60	10,588	10,778	11,163	10,955	10,662	10,417	10,225	9,574	9,037
61	10,792	10,956	11,418	11,228	10,895	10,572	10,454	9,722	9,229
62	11,005	11,231	11,627	11,433	11,064	10,798	10,566	10,082	9,439
63	11,298	11,448	11,828	11,681	11,269	11,108	10,733	10,288	9,636
64	11,528	11,729	12,146	11,911	11,725	11,286	11,067	10,536	9,881
65	11,688	11,978	12,395	12,211	12,146	11,567	11,273	10,791	9,958
66	12,157	12,268	12,667	12,476	12,273	11,956	11,649	11,057	10,211
67	12,430	12,663	13,060	12,737	12,681	12,276	11,796	11,275	10,588
68	12,661	12,826	13,272	12,999	12,826	12,357	12,096	11,648	10,761
69	12,838	13,063	13,574	13,097	13,095	12,585	12,436	11,773	10,965
70	13,082	13,298	13,851	13,387	13,262	12,742	12,696	12,082	11,229
71	13,477	13,695	14,052	13,712	13,584	12,852	12,952	12,283	11,427
72	13,936	14,088	14,360	13,876	13,677	13,099	13,095	12,438	11,676
73	14,296	14,345	14,567	14,230	13,874	13,318	13,273	12,611	11,906
74	14,638	14,636	14,739	14,603	14,041	13,479	13,538	13,173	12,280
75	14,917	14,780	15,023	14,906	14,263	13,699	13,720	13,449	12,639
76	15,175	15,086	15,261	15,139	14,726	14,084	14,064	13,718	12,982
77	15,538	15,388	15,418	15,365	15,088	14,615	14,466	14,086	13,225
78	15,855	15,686	15,868	15,612	15,388	15,268	14,981	14,311	13,589
79	16,087	16,063	16,267	16,163	15,692	15,625	15,373	14,799	13,982
80	16,389	16,403	16,388	16,495	16,070	16,061	15,666	15,088	14,337
81	16,693	16,687	16,761	16,729	16,442	16,388	15,888	15,405	14,638
82	17,027	17,067	17,056	16,973	16,844	16,729	16,221	15,796	15,068
83	17,462	17,398	17,468	17,431	17,388	17,122	16,710	15,996	15,625
84	18,295	18,139	17,933	18,067	17,868	17,618	17,376	16,697	16,157
85	18,738	18,386	18,357	18,366	18,446	17,711	17,988	17,259	16,686
86	19,178	19,088	18,939	19,197	18,998	18,342	18,612	17,814	17,252
87	19,362	19,744	19,472	19,826	19,362	18,951	18,918	18,678	17,635
88	20,051	20,186	20,262	20,432	20,122	19,586	19,268	18,822	18,161
89	20,726	20,986	20,827	21,251	21,058	20,256	19,762	19,588	18,962
90	21,285	21,568	21,525	21,896	21,317	21,066	20,332	19,858	19,962
91	21,838	21,779	22,079	22,566	22,088	21,777	20,953	20,515	19,687
92	22,666	22,543	23,029	23,062	22,736	22,383	21,906	21,227	19,966
93	23,481	23,162	23,887	23,586	23,326	23,291	22,717	21,669	20,738
94	24,069	24,139	24,686	24,617	24,413	24,196	23,227	22,561	21,681
95	25,013	25,276	25,668	25,628	25,288	24,999	24,136	23,388	22,644
96	25,871	26,080	26,673	26,627	26,126	25,877	25,262	24,813	23,814
97	27,490	27,778	28,062	27,674	27,127	26,886	26,538	26,015	25,088
98	28,632	28,666	28,967	28,962	28,394	27,998	27,648	26,718
99	32,869	32,736	32,761	32,667	31,981	31,383	30,125	29,366	28,188
100	39,152	38,310	38,201	38,988	38,388	37,626	37,011	35,775	35,088
Mean	8,885	9,012	9,317	9,388	9,183	8,921	8,587	8,138	7,687
Stdev	9,629	9,697	9,586	9,695	9,388	9,182	9,188	8,968	8,875

Appendix Table C-30: Simulated Annualized Income CDFs, Chamber C, Technology Package, High Price Scenario, Brown Soils, Saskatchewan

Percentile No.	Rp = (psu) 65	70	75	80	85	90	95	100	105
1	(5,220)	(4,674)	(3,781)	(3,250)	(3,130)	(3,260)	(3,253)	(3,130)	(4,681)
2	1,065	1,007	1,177	1,019	1,004	1,938	1,814	665	251
3	2,966	3,642	3,110	3,205	3,000	3,733	3,000	2,618	1,007
4	4,190	5,007	4,731	4,843	4,700	4,710	4,842	3,700	2,592
5	5,825	5,736	5,997	6,230	5,900	5,967	6,000	4,990	3,991
6	6,883	6,931	7,166	7,991	7,256	6,967	6,676	6,200	4,826
7	7,660	7,525	8,261	8,621	8,002	7,706	7,160	7,573	5,669
8	8,151	8,020	9,260	9,256	8,961	8,219	7,727	7,517	6,625
9	8,666	9,206	10,066	10,202	9,726	9,263	8,600	8,106	7,261
10	9,642	9,666	10,761	10,856	10,669	9,570	9,196	8,960	7,868
11	9,662	10,272	11,206	11,366	10,861	10,620	9,991	9,200	8,700
12	10,335	11,106	11,956	11,729	11,467	11,205	10,636	9,691	9,270
13	11,205	11,673	12,573	12,446	11,887	11,706	11,061	10,287	9,663
14	12,636	12,715	13,061	12,969	12,673	12,264	11,517	11,191	10,666
15	12,960	13,251	13,521	13,370	13,005	12,666	12,139	11,701	10,000
16	13,627	13,900	13,905	13,953	13,666	13,002	12,501	12,005	11,260
17	13,960	14,215	14,160	14,251	13,966	13,263	12,999	12,666	11,570
18	14,695	14,552	14,500	14,650	14,200	13,660	13,200	12,700	11,870
19	14,770	14,912	14,976	14,906	14,573	14,253	13,676	13,200	12,200
20	15,055	15,167	15,315	15,151	15,165	14,600	14,200	13,770	12,767
21	15,300	15,396	15,667	15,300	15,506	14,912	14,616	14,130	13,135
22	15,630	15,600	16,109	16,023	15,826	15,233	14,621	14,266	13,667
23	16,329	16,230	16,367	16,276	16,263	15,676	15,209	14,602	13,636
24	16,760	16,974	17,000	16,776	16,606	15,791	15,601	15,065	13,991
25	17,027	17,302	17,290	17,009	16,776	16,002	15,667	15,200	14,230
26	17,606	17,730	17,667	17,650	17,004	16,600	15,966	15,600	14,517
27	17,873	18,076	17,765	17,917	17,202	16,902	16,230	15,900	14,762
28	18,222	18,619	17,990	18,205	17,391	17,261	16,776	16,264	15,210
29	18,811	18,781	18,572	18,703	18,167	17,775	17,217	16,663	15,556
30	19,255	19,167	19,090	19,162	18,683	18,004	17,660	17,012	15,776
31	19,707	19,668	19,667	19,560	19,107	18,579	17,965	17,305	16,166
32	20,163	19,971	20,009	20,001	19,610	19,013	18,307	17,663	16,668
33	20,564	20,300	20,307	20,254	19,950	19,602	18,662	17,990	16,967
34	20,764	20,717	20,570	20,727	20,267	19,636	19,032	18,166	17,006
35	21,074	21,064	20,990	20,776	20,644	19,866	19,300	18,302	17,633
36	21,309	21,300	21,260	21,020	20,736	20,225	19,673	18,775	17,966
37	21,566	21,501	21,329	21,271	21,100	20,661	19,965	19,010	18,009
38	21,933	21,902	21,656	21,619	21,475	20,901	20,305	19,600	18,536
39	22,273	22,325	22,101	21,909	21,706	21,313	20,662	19,777	18,708
40	22,696	22,671	22,469	22,300	21,961	21,660	21,000	20,100	19,230
41	22,967	22,950	22,744	22,617	22,360	21,964	21,342	20,630	19,698
42	23,636	23,351	23,070	23,013	22,690	22,306	21,676	20,985	19,871
43	23,763	23,664	23,611	23,662	23,000	22,563	22,000	21,609	20,199
44	24,220	23,960	24,001	23,790	23,327	22,776	22,329	21,200	20,695
45	24,650	24,636	24,306	24,411	23,661	23,000	22,300	21,660	20,767
46	24,900	24,906	24,779	24,725	23,901	23,300	22,631	21,702	21,139
47	25,427	25,302	25,166	25,091	24,176	23,760	22,973	22,064	21,300
48	25,674	25,668	25,571	25,322	24,517	24,066	23,322	22,391	21,636
49	25,970	25,838	25,900	25,670	24,826	24,391	23,526	22,600	22,002
50	26,200	26,260	26,060	26,325	25,635	24,929	23,966	22,967	22,330
51	26,667	26,661	26,200	26,666	25,783	25,305	24,300	23,300	22,599
52	26,796	26,765	26,595	26,860	26,160	25,650	24,716	23,660	22,962
53	27,066	27,067	27,260	27,161	26,665	25,650	25,005	24,062	23,305
54	27,300	27,266	27,665	27,660	26,761	26,137	25,302	24,300	23,666
55	27,763	27,667	27,900	27,766	27,057	26,676	25,732	24,600	23,900
56	28,139	28,157	28,270	28,006	27,300	26,776	26,060	25,000	24,306
57	28,656	28,306	28,562	28,613	27,710	27,099	26,397	25,639	24,600
58	28,960	28,709	28,830	28,953	28,067	27,653	26,802	25,913	24,995
59	29,300	29,213	29,172	29,660	28,376	27,737	27,306	26,110	25,305
60	29,709	29,660	29,539	29,700	28,671	28,057	27,576	26,570	25,600
61	30,066	29,867	29,717	29,966	28,962	28,232	28,000	26,977	25,900
62	30,360	30,256	30,171	30,200	29,291	28,671	28,656	27,306	26,300
63	30,637	30,666	30,660	30,533	29,660	29,062	28,763	27,761	26,667
64	30,813	31,000	30,991	30,900	29,900	29,267	29,000	28,100	26,700
65	31,007	31,300	31,269	31,170	30,666	29,673	29,372	28,305	27,001
66	31,666	31,867	31,709	31,622	30,710	30,000	29,656	28,613	27,675
67	31,856	31,966	32,001	31,760	31,005	30,363	30,000	28,900	27,966
68	32,263	32,263	32,660	32,000	31,309	31,003	30,650	29,300	28,331
69	32,651	32,661	32,762	32,616	31,667	31,300	30,900	29,665	28,702
70	33,106	33,070	33,060	32,737	32,130	31,561	31,300	29,900	29,305
71	33,530	33,536	33,370	33,054	32,311	31,966	31,613	30,600	29,693
72	33,863	33,866	33,666	33,369	32,763	32,316	31,991	30,961	29,933
73	34,252	34,226	33,869	33,511	33,175	32,566	32,302	31,110	30,164
74	34,623	34,510	34,296	34,006	33,564	32,888	32,596	31,630	30,668
75	34,960	34,863	34,570	34,300	33,858	33,198	32,692	31,887	30,636
76	35,273	35,376	35,016	34,743	34,626	33,617	33,081	32,300	31,073
77	35,551	35,667	35,661	35,276	34,771	33,953	33,666	32,526	31,382
78	35,967	36,316	35,910	35,743	35,200	34,467	33,736	33,001	31,766
79	36,606	36,660	36,343	36,067	35,533	34,900	34,067	33,376	31,966
80	36,772	36,960	36,664	36,300	35,900	35,216	34,616	33,611	32,361
81	37,062	37,199	37,129	36,770	36,336	35,517	34,921	33,965	32,766
82	37,361	37,627	37,286	37,009	36,617	35,882	35,259	34,306	33,216
83	37,762	37,886	37,716	37,383	37,014	36,276	35,715	34,616	33,705
84	38,273	38,216	38,237	38,004	37,339	36,696	36,093	35,362	34,135
85	38,706	38,686	38,176	38,670	37,666	37,167	36,458	35,893	34,660
86	39,262	39,008	38,731	39,232	38,000	37,561	36,958	36,200	35,167
87	40,670	40,006	40,371	39,979	38,611	37,726	37,300	36,506	35,650
88	41,226	41,007	41,077	40,677	39,626	38,539	37,999	37,000	36,000
89	41,922	41,826	41,626	41,253	40,061	39,216	38,666	37,504	36,645
90	42,573	42,396	42,166	42,160	41,070	40,197	39,692	38,535	37,312
91	43,988	44,063	43,300	43,001	41,900	41,313	40,922	39,300	37,976
92	44,670	44,660	43,975	43,961	43,110	42,001	41,676	40,660	38,677
93	45,666	45,361	44,873	44,672	43,832	43,207	42,770	41,660	39,620
94	46,662	46,206	45,660	45,300	45,006	44,611	43,921	42,336	41,094
95	48,117	47,725	47,630	46,873	46,167	45,301	44,762	43,306	42,125
96	49,612	49,461	49,210	48,301	47,731	46,905	45,737	44,630	43,116
97	51,676	50,950	50,660	50,616	50,000	49,304	48,025	45,910	44,362
98	53,457	53,195	53,203	52,610	51,963	51,665	50,472	48,732	47,004
99	56,567	55,699	55,627	54,895	54,611	53,636	53,100	51,200	49,630
100	62,300	61,615	61,000	60,300	59,776	58,903	58,310	56,300	54,629
Mean	36,567	36,573	36,575	36,630	35,665	35,311	34,762	33,917	32,661
Stdev	12,991	12,710	12,369	12,374	12,262	12,061	12,007	11,602	11,199

Appendix Table C-31: Simulated annualized income ($M), Chapter C, Price Insurance Policy, Low Price Scenario, Brown Soils, Saskatchewan

Percentile No	dz = (gap) 65	70	75	80	85	90	95	100	105
1	(24,483)	(25,092)	(25,681)	(23,880)	(22,716)	(22,398)	(22,129)	(22,190)	(22,015)
2	(24,166)	(23,998)	(22,362)	(22,289)	(21,382)	(20,811)	(21,199)	(20,642)	(20,651)
3	(22,998)	(22,660)	(21,292)	(20,926)	(20,629)	(19,997)	(19,962)	(19,326)	(19,007)
4	(22,166)	(21,933)	(20,577)	(19,670)	(19,772)	(19,582)	(19,501)	(19,167)	(18,737)
5	(21,266)	(20,664)	(19,677)	(19,060)	(18,869)	(18,434)	(18,259)	(18,262)	(18,233)
6	(20,683)	(19,866)	(19,221)	(18,438)	(18,057)	(17,864)	(17,665)	(17,656)	(17,434)
7	(20,028)	(19,173)	(18,599)	(17,648)	(17,469)	(17,225)	(17,284)	(17,252)	(17,439)
8	(19,475)	(18,706)	(18,021)	(17,282)	(17,095)	(16,718)	(16,764)	(16,670)	(16,798)
9	(18,963)	(18,401)	(17,906)	(17,052)	(16,764)	(16,488)	(16,423)	(16,288)	(16,265)
10	(18,662)	(18,021)	(17,566)	(16,788)	(16,451)	(16,138)	(16,193)	(15,972)	(15,942)
11	(18,288)	(17,774)	(16,968)	(16,511)	(16,218)	(15,918)	(15,888)	(15,761)	(15,688)
12	(17,721)	(17,333)	(16,687)	(16,213)	(16,011)	(15,660)	(15,584)	(15,460)	(15,489)
13	(17,433)	(17,113)	(16,332)	(15,966)	(15,743)	(15,393)	(15,289)	(15,283)	(15,283)
14	(17,252)	(16,866)	(15,954)	(15,736)	(15,377)	(15,166)	(15,088)	(15,113)	(15,082)
15	(16,961)	(16,553)	(15,888)	(15,399)	(15,088)	(14,961)	(14,788)	(14,882)	(14,881)
16	(16,737)	(16,119)	(15,398)	(15,161)	(14,888)	(14,768)	(14,637)	(14,713)	(14,699)
17	(16,477)	(15,845)	(15,102)	(14,973)	(14,588)	(14,333)	(14,648)	(14,588)	(14,587)
18	(16,083)	(15,681)	(14,934)	(14,778)	(14,388)	(14,097)	(14,281)	(14,289)	(14,288)
19	(15,663)	(15,398)	(14,696)	(14,628)	(14,099)	(14,099)	(14,061)	(14,288)	(14,066)
20	(15,429)	(15,113)	(14,601)	(14,262)	(13,888)	(13,866)	(13,857)	(14,011)	(13,885)
21	(15,264)	(14,874)	(14,238)	(14,064)	(13,673)	(13,667)	(13,638)	(13,768)	(13,787)
22	(14,938)	(14,781)	(14,088)	(13,761)	(13,482)	(13,438)	(13,429)	(13,388)	(13,374)
23	(14,697)	(14,533)	(13,868)	(13,361)	(13,218)	(13,182)	(13,177)	(13,199)	(13,218)
24	(14,325)	(14,267)	(13,643)	(13,182)	(13,085)	(12,981)	(12,886)	(13,049)	(12,898)
25	(14,171)	(14,181)	(13,647)	(12,988)	(12,813)	(12,638)	(12,585)	(12,881)	(12,881)
26	(13,991)	(13,985)	(13,284)	(12,888)	(12,589)	(12,384)	(12,348)	(12,678)	(12,688)
27	(13,853)	(13,788)	(12,944)	(12,533)	(12,256)	(12,148)	(12,177)	(12,442)	(12,483)
28	(13,676)	(13,474)	(12,713)	(12,384)	(12,099)	(11,983)	(11,948)	(12,231)	(12,284)
29	(13,357)	(13,173)	(12,495)	(12,189)	(11,866)	(11,773)	(11,888)	(11,978)	(12,288)
30	(13,138)	(12,832)	(12,181)	(11,948)	(11,657)	(11,584)	(11,598)	(11,738)	(12,872)
31	(12,899)	(12,693)	(12,063)	(11,787)	(11,588)	(11,448)	(11,438)	(11,588)	(11,878)
32	(12,588)	(12,271)	(11,837)	(11,531)	(11,388)	(11,218)	(11,288)	(11,284)	(11,721)
33	(12,388)	(12,889)	(11,644)	(11,388)	(11,126)	(10,998)	(11,122)	(11,138)	(11,588)
34	(12,128)	(11,988)	(11,448)	(11,288)	(11,014)	(10,781)	(10,985)	(10,984)	(11,384)
35	(11,996)	(11,665)	(11,284)	(10,948)	(10,779)	(10,578)	(10,798)	(10,748)	(11,158)
36	(11,847)	(11,493)	(11,872)	(10,665)	(10,573)	(10,372)	(10,578)	(10,629)	(10,985)
37	(11,679)	(11,379)	(10,848)	(10,432)	(10,373)	(10,145)	(10,418)	(10,526)	(10,867)
38	(11,477)	(11,256)	(10,664)	(10,312)	(10,187)	(9,983)	(10,176)	(10,379)	(10,687)
39	(11,374)	(11,135)	(10,478)	(10,152)	(9,898)	(9,786)	(9,986)	(10,045)	(10,187)
40	(11,195)	(10,938)	(10,281)	(9,984)	(9,738)	(9,643)	(9,817)	(9,893)	(10,047)
41	(11,014)	(10,727)	(10,125)	(9,798)	(9,586)	(9,528)	(9,687)	(9,693)	(9,994)
42	(10,771)	(10,576)	(9,938)	(9,699)	(9,448)	(9,369)	(9,315)	(9,458)	(9,736)
43	(10,672)	(10,287)	(9,691)	(9,374)	(9,291)	(9,176)	(9,138)	(9,161)	(9,562)
44	(10,565)	(9,931)	(9,445)	(9,137)	(9,166)	(8,976)	(8,938)	(9,088)	(9,386)
45	(10,291)	(9,798)	(9,236)	(9,019)	(8,968)	(8,823)	(8,714)	(8,878)	(9,218)
46	(10,133)	(9,671)	(9,095)	(8,851)	(8,699)	(8,561)	(8,559)	(8,695)	(9,022)
47	(9,988)	(9,568)	(8,968)	(8,666)	(8,662)	(8,481)	(8,383)	(8,586)	(8,868)
48	(9,766)	(9,311)	(8,777)	(8,561)	(8,288)	(8,257)	(8,218)	(8,337)	(8,748)
49	(9,573)	(9,165)	(8,588)	(8,287)	(8,091)	(8,091)	(8,063)	(8,264)	(8,513)
50	(9,368)	(8,952)	(8,448)	(8,134)	(7,977)	(7,953)	(7,963)	(8,166)	(8,382)
51	(9,163)	(8,744)	(8,225)	(7,984)	(7,761)	(7,622)	(7,673)	(8,046)	(8,216)
52	(8,886)	(8,609)	(8,086)	(7,868)	(7,517)	(7,428)	(7,498)	(7,886)	(8,111)
53	(8,731)	(8,431)	(7,891)	(7,697)	(7,368)	(7,421)	(7,545)	(7,782)	(7,988)
54	(8,617)	(8,251)	(7,671)	(7,526)	(7,167)	(7,217)	(7,356)	(7,646)	(7,777)
55	(8,474)	(8,085)	(7,368)	(7,183)	(6,971)	(7,088)	(7,139)	(7,271)	(7,681)
56	(8,288)	(7,862)	(7,197)	(7,015)	(6,868)	(6,818)	(6,948)	(7,111)	(7,648)
57	(7,843)	(7,719)	(7,087)	(6,897)	(6,663)	(6,629)	(6,761)	(6,988)	(7,288)
58	(7,693)	(7,538)	(6,866)	(6,695)	(6,497)	(6,526)	(6,581)	(6,838)	(7,186)
59	(7,492)	(7,351)	(6,695)	(6,489)	(6,439)	(6,368)	(6,423)	(6,672)	(6,936)
60	(7,353)	(7,163)	(6,526)	(6,275)	(6,256)	(6,171)	(6,289)	(6,548)	(6,798)
61	(7,201)	(6,933)	(6,296)	(6,126)	(6,071)	(5,973)	(6,011)	(6,266)	(6,638)
62	(6,988)	(6,713)	(6,181)	(6,013)	(5,869)	(5,848)	(5,845)	(6,038)	(6,446)
63	(6,733)	(6,488)	(5,973)	(5,729)	(5,568)	(5,651)	(5,627)	(5,826)	(6,294)
64	(6,671)	(6,297)	(5,733)	(5,552)	(5,335)	(5,465)	(5,454)	(5,699)	(6,073)
65	(6,366)	(6,018)	(5,676)	(5,368)	(5,148)	(5,284)	(5,331)	(5,584)	(5,925)
66	(6,168)	(5,768)	(5,265)	(5,135)	(4,944)	(5,037)	(5,287)	(5,388)	(5,775)
67	(5,899)	(5,563)	(5,076)	(5,016)	(4,712)	(4,799)	(5,020)	(5,139)	(5,511)
68	(5,752)	(5,357)	(4,962)	(4,782)	(4,511)	(4,699)	(4,898)	(4,937)	(5,316)
69	(5,611)	(5,076)	(4,743)	(4,571)	(4,392)	(4,458)	(4,688)	(4,776)	(5,188)
70	(5,366)	(4,866)	(4,421)	(4,198)	(4,091)	(4,268)	(4,479)	(4,698)	(5,018)
71	(5,086)	(4,576)	(4,138)	(4,078)	(3,744)	(4,073)	(4,333)	(4,573)	(4,837)
72	(4,763)	(4,383)	(3,962)	(4,117)	(3,462)	(3,819)	(4,119)	(4,274)	(4,678)
73	(4,449)	(4,256)	(3,796)	(3,933)	(3,384)	(3,566)	(3,825)	(4,077)	(4,288)
74	(4,288)	(3,885)	(3,687)	(3,676)	(3,122)	(3,337)	(3,573)	(3,846)	(3,938)
75	(4,063)	(3,662)	(3,327)	(3,389)	(2,933)	(3,138)	(3,389)	(3,616)	(3,756)
76	(3,798)	(3,393)	(2,998)	(3,012)	(2,787)	(2,896)	(3,057)	(3,384)	(3,583)
77	(3,618)	(3,088)	(2,784)	(2,784)	(2,688)	(2,712)	(2,788)	(3,148)	(3,398)
78	(3,298)	(2,856)	(2,586)	(2,633)	(2,362)	(2,568)	(2,567)	(2,779)	(3,048)
79	(3,096)	(2,598)	(2,263)	(2,183)	(2,188)	(2,287)	(2,288)	(2,643)	(2,861)
80	(2,795)	(2,338)	(1,966)	(1,945)	(1,841)	(1,896)	(1,998)	(2,256)	(2,588)
81	(2,516)	(2,178)	(1,723)	(1,673)	(1,586)	(1,784)	(1,717)	(1,889)	(2,282)
82	(2,298)	(1,998)	(1,488)	(1,364)	(1,285)	(1,432)	(1,331)	(1,686)	(2,178)
83	(2,022)	(1,735)	(1,168)	(1,063)	(1,067)	(1,122)	(1,088)	(1,321)	(1,879)
84	(1,741)	(1,229)	(898)	(752)	(818)	(843)	(788)	(1,044)	(1,668)
85	(1,369)	(892)	(434)	(363)	(588)	(623)	(588)	(888)	(1,432)
86	(932)	(557)	138	75	(233)	(388)	(187)	(473)	(988)
87	(332)	38	447	422	85	138	166	(71)	(668)
88	(1)	352	771	615	528	395	552	228	(361)
89	615	842	1,019	1,235	936	817	987	579	182
90	1,063	1,328	1,628	1,717	1,373	1,184	1,379	1,014	598
91	1,488	1,682	1,861	2,087	1,672	1,583	1,811	1,412	1,088
92	1,958	2,087	2,359	2,373	2,449	2,264	2,252	1,828	1,544
93	2,568	2,586	2,972	3,428	3,131	3,019	2,883	2,488	2,089
94	3,068	3,043	3,489	3,922	4,075	3,764	3,616	3,388	2,688
95	4,639	4,485	4,887	4,796	4,817	4,626	4,281	3,872	3,367
96	5,616	5,357	5,686	5,289	5,427	5,392	5,126	4,625	4,191
97	6,396	6,628	7,268	7,068	6,843	6,586	6,369	5,726	4,968
98	7,373	7,728	8,432	8,112	7,768	7,586	7,091	6,477	6,163
99	8,881	9,885	9,383	9,386	9,886	8,762	8,818	8,168	8,183
100	12,487	12,737	12,952	12,499	12,496	12,266	11,895	11,288	10,678
Mean	(8,836)	(8,487)	(7,968)	(7,795)	(7,526)	(7,585)	(7,516)	(7,726)	(7,974)
StDev	7,483	7,568	7,366	7,219	7,065	6,983	6,837	6,787	6,579

Appendix Table C-32: Simulated annualized income CDFs, Cluster C, Price Insurance Policy, Base Price Scenario, Brown Soils, Saskatchewan

Percentile	Rs = Cad								
No	65	70	75	80	85	90	95	100	105
1	(14,767)	(14,437)	(13,660)	(13,143)	(13,100)	(12,700)	(12,500)	(12,321)	(12,663)
2	(11,671)	(10,998)	(10,987)	(9,777)	(10,226)	(9,681)	(9,958)	(10,116)	(10,197)
3	(10,631)	(9,860)	(9,836)	(9,264)	(8,612)	(8,886)	(8,666)	(8,816)	(8,886)
4	(9,258)	(8,709)	(7,986)	(7,656)	(8,966)	(7,886)	(7,456)	(7,506)	(8,066)
5	(8,117)	(7,718)	(6,756)	(6,780)	(6,977)	(6,276)	(6,636)	(6,669)	(7,180)
6	(7,361)	(6,628)	(6,888)	(5,867)	(5,262)	(5,776)	(5,960)	(5,760)	(6,966)
7	(6,156)	(5,660)	(5,276)	(5,099)	(4,866)	(5,022)	(4,896)	(4,988)	(6,088)
8	(5,063)	(4,960)	(4,783)	(4,425)	(4,161)	(4,437)	(4,827)	(4,619)	(5,216)
9	(4,396)	(4,323)	(3,981)	(3,660)	(3,529)	(3,673)	(3,397)	(4,001)	(4,867)
10	(4,063)	(3,612)	(3,266)	(2,982)	(2,960)	(3,179)	(3,316)	(3,288)	(4,368)
11	(3,588)	(3,199)	(2,960)	(2,883)	(2,673)	(2,862)	(2,970)	(3,288)	(3,976)
12	(3,173)	(2,765)	(2,397)	(1,673)	(2,156)	(2,377)	(2,732)	(2,993)	(3,373)
13	(2,730)	(2,630)	(1,921)	(1,666)	(1,862)	(1,988)	(2,437)	(2,668)	(2,966)
14	(2,251)	(1,979)	(1,388)	(1,476)	(1,668)	(1,991)	(2,086)	(2,288)	(2,688)
15	(1,763)	(1,683)	(1,386)	(1,388)	(962)	(1,171)	(1,675)	(1,886)	(2,188)
16	(1,668)	(1,282)	(1,886)	(991)	(962)	(868)	(1,668)	(1,668)	(1,888)
17	(1,998)	(1,112)	(679)	(668)	(861)	(388)	(988)	(1,386)	(1,588)
18	(888)	(778)	(668)	(862)	(11)	(188)	(388)	(1,867)	(1,388)
19	(717)	(638)	(382)	(3)	228	788	(388)	(667)	(1,888)
20	(386)	(188)	176	386	661	618	(32)	(367)	(1112)
21	78	163	628	887	838	828	887	(187)	(776)
22	388	434	861	1,886	1,187	982	668	118	(661)
23	666	813	1,236	1,367	1,388	1,136	888	438	(371)
24	788	1,162	1,381	1,661	1,636	1,386	1,187	736	(38)
25	1,896	1,388	1,666	1,728	1,788	1,788	1,388	1,888	88
26	1,378	1,688	2,367	2,886	2,888	1,928	1,688	1,168	388
27	1,863	1,867	2,686	2,628	2,366	2,381	1,866	1,366	788
28	1,888	2,151	2,913	2,776	2,663	2,688	2,212	1,366	888
29	2,273	2,638	3,887	2,960	2,978	2,688	2,388	1,838	1,188
30	2,663	2,888	3,361	3,278	3,388	2,928	2,868	2,181	1,381
31	3,866	3,233	3,582	3,743	3,737	3,377	2,761	2,888	1,812
32	3,323	3,513	3,822	3,916	3,988	3,661	3,888	2,668	2,662
33	3,986	3,788	4,888	4,291	4,188	4,868	3,336	2,871	2,336
34	3,768	3,977	4,387	4,662	4,311	4,261	3,673	3,888	2,868
35	4,876	4,288	4,686	4,868	4,768	4,588	3,962	3,468	2,978
36	4,251	4,384	4,996	5,168	5,889	4,742	4,187	3,677	3,236
37	4,628	4,567	5,265	5,338	5,366	4,978	4,386	3,887	3,573
38	4,618	4,737	5,668	5,866	5,567	5,139	4,621	4,186	3,715
39	4,866	5,863	5,688	6,811	5,751	5,386	4,678	4,662	3,988
40	5,283	5,396	5,863	6,196	5,967	5,666	5,867	4,765	4,238
41	5,686	5,527	6,877	6,667	6,172	5,778	5,288	4,969	4,686
42	5,715	5,899	6,315	6,666	6,368	6,887	5,587	5,238	4,738
43	5,968	6,153	6,618	6,788	6,588	6,292	5,829	5,536	4,987
44	6,286	6,633	6,783	6,953	6,735	6,532	6,866	5,763	5,388
45	6,686	6,677	7,186	7,185	6,863	6,763	6,388	6,188	5,588
46	6,666	6,882	7,286	7,633	7,169	7,888	6,396	6,338	5,867
47	6,811	7,116	7,373	7,766	7,386	7,276	6,788	6,665	6,181
48	7,887	7,288	7,668	8,012	7,362	7,662	7,188	6,728	6,388
49	7,633	7,731	8,169	8,286	7,888	7,631	7,388	7,188	6,666
50	7,888	8,073	8,386	8,581	8,864	7,819	7,366	7,321	6,868
51	8,161	8,468	8,588	8,738	8,225	8,878	7,762	7,376	7,881
52	8,486	8,686	8,863	9,013	8,653	8,286	8,373	7,888	7,378
53	8,838	8,988	9,863	9,226	8,744	8,618	8,668	8,869	7,388
54	9,114	9,288	9,288	9,387	9,886	8,668	8,788	8,286	7,717
55	9,362	9,381	9,536	9,667	9,613	8,912	9,883	8,536	7,988
56	9,626	9,788	9,688	9,988	9,686	9,188	9,888	8,638	8,238
57	10,888	10,888	10,119	10,173	9,799	9,663	9,238	9,162	8,577
58	10,234	10,414	10,316	10,611	10,888	9,868	9,788	9,666	8,867
59	10,665	10,788	10,867	10,882	10,338	10,238	9,868	9,618	9,187
60	10,731	10,987	11,886	10,867	10,388	10,436	10,273	9,886	9,386
61	11,868	11,273	11,442	11,176	10,783	10,673	10,686	10,882	9,618
62	11,387	11,686	11,666	11,668	11,128	11,889	10,668	10,264	9,637
63	11,632	11,867	11,888	11,867	11,481	11,318	10,937	10,361	10,863
64	12,866	12,165	12,268	12,286	11,888	11,566	11,268	10,768	10,187
65	12,388	12,381	12,337	12,278	12,119	11,838	11,676	11,883	10,688
66	12,532	12,726	12,888	12,588	12,666	12,236	11,862	11,363	10,763
67	12,988	13,866	13,162	12,787	12,886	12,666	12,186	11,662	10,961
68	13,172	13,688	13,662	13,178	13,286	12,678	12,327	11,988	11,181
69	13,571	13,988	13,813	13,613	13,671	13,868	12,986	12,376	11,588
70	13,888	14,211	14,185	14,867	14,888	13,887	13,288	12,836	11,886
71	14,161	14,437	14,688	14,366	14,326	13,888	13,863	13,186	12,213
72	14,616	14,862	14,838	14,667	14,862	14,181	13,923	13,316	12,366
73	14,838	15,186	15,287	15,186	15,135	14,387	14,278	13,636	12,881
74	15,186	15,383	15,366	15,682	15,453	14,883	14,383	13,888	13,168
75	15,656	15,387	15,987	16,172	15,982	15,276	14,863	14,177	13,468
76	15,912	15,879	16,266	16,388	16,187	15,731	15,287	14,466	13,778
77	16,238	16,388	16,712	16,738	16,481	16,188	15,868	14,888	14,888
78	16,598	16,788	17,168	17,863	16,811	16,488	15,988	15,888	14,376
79	16,981	17,158	17,488	17,387	17,278	16,783	16,282	15,861	14,887
80	17,328	17,443	17,988	17,619	17,386	17,813	16,687	15,668	15,168
81	18,886	18,887	18,386	17,988	17,888	17,288	16,868	16,888	15,378
82	18,618	18,337	18,737	18,485	18,288	17,667	17,868	16,658	15,763
83	18,661	18,866	19,181	18,838	18,612	18,288	17,666	16,867	16,187
84	19,866	19,135	19,368	19,488	19,887	18,888	18,188	17,371	16,726
85	19,781	19,873	19,992	19,988	19,688	19,116	18,713	17,863	17,688
86	20,386	20,288	20,432	20,388	19,982	19,588	19,251	18,377	17,988
87	20,778	20,966	20,968	20,818	20,288	20,163	19,617	18,968	18,281
88	21,588	21,861	21,366	21,573	20,976	20,771	20,386	19,688	18,713
89	22,389	22,366	22,867	22,286	21,886	21,618	20,881	20,371	19,868
90	23,881	23,278	22,682	22,868	22,883	22,888	21,988	21,868	20,681
91	23,688	23,687	23,935	23,646	23,645	22,976	22,376	21,736	21,187
92	24,377	24,466	24,763	24,282	24,388	24,888	23,619	22,388	21,682
93	25,232	25,372	25,631	25,838	24,998	24,921	24,166	23,263	22,282
94	26,817	26,877	26,689	26,238	25,726	25,687	24,958	24,888	23,888
95	27,881	28,998	27,287	27,168	26,467	26,888	25,727	24,911	23,981
96	28,168	27,888	28,232	28,332	27,372	27,488	27,886	26,817	25,286
97	29,675	29,886	29,146	29,684	28,618	28,238	27,788	26,967	26,383
98	30,733	31,222	30,986	31,388	30,933	30,381	29,237	28,737	27,888
99	33,886	33,273	33,157	33,296	32,888	32,618	31,761	31,188	29,786
100	36,488	36,276	36,217	35,979	35,887	35,438	34,785	33,364	32,738
Mean	8,836	9,883	9,338	9,361	9,235	8,968	8,588	8,886	7,388
Stdev	10,448	10,374	10,211	10,072	9,937	9,832	9,726	9,513	9,438

Appendix Table C-23: Simulated Annualized Income ($M), Cluster C, Price Insurance Policy, High Price Scenario, Brown Soils, Saskatchewan

Percentile	Rs = (%)								
Yr	60	70	75	80	85	90	95	100	105
1	(6,331)	(5,966)	(5,169)	(4,379)	(4,319)	(5,296)	(6,685)	(6,198)	(3,483)
2	(436)	786	833	892	886	952	107	335	(580)
3	1,877	2,459	2,686	2,791	3,369	3,314	2,366	2,617	1,881
4	3,836	3,821	4,438	4,139	4,473	4,836	4,383	3,794	3,447
5	5,163	5,352	5,366	5,601	5,564	6,082	5,362	6,701	4,372
6	6,237	6,660	6,691	7,151	6,710	6,745	6,052	5,634	4,716
7	7,215	7,669	7,832	8,080	7,689	7,570	6,762	6,261	5,633
8	7,973	8,421	8,657	8,862	8,387	8,276	7,342	7,080	6,302
9	8,635	9,283	9,488	9,718	9,184	8,788	8,188	7,788	6,985
10	9,297	10,088	9,963	10,438	9,885	9,321	8,728	8,449	7,696
11	10,138	10,659	10,844	10,977	10,388	9,739	9,465	9,200	8,466
12	10,668	11,160	11,473	11,319	11,087	10,399	9,963	9,728	9,151
13	11,280	11,638	12,002	11,868	11,638	11,212	10,536	10,182	9,689
14	11,886	11,959	12,634	12,323	11,926	11,787	11,172	10,868	10,094
15	12,391	12,778	13,043	12,960	12,373	12,284	11,662	10,738	10,468
16	13,367	13,288	13,396	13,371	12,668	12,769	12,019	11,868	10,868
17	13,748	13,751	13,867	13,778	13,388	13,188	12,891	11,661	11,162
18	14,198	14,086	14,239	14,263	13,738	13,662	12,989	12,882	11,389
19	14,686	14,602	14,614	14,868	14,182	13,961	13,691	12,988	11,781
20	14,961	14,823	15,086	15,292	14,513	14,388	13,888	12,961	12,161
21	15,368	15,288	15,517	15,621	14,872	14,836	14,282	13,366	12,672
22	15,732	15,918	15,863	16,086	15,218	15,188	14,658	13,959	13,081
23	16,167	16,311	16,257	16,391	15,688	15,586	14,958	14,361	13,457
24	16,561	16,669	16,739	16,844	16,088	15,991	15,256	14,688	13,965
25	17,009	17,096	17,286	17,258	16,472	16,364	15,588	14,972	14,288
26	17,669	17,361	17,686	17,625	16,715	16,539	15,726	15,636	14,669
27	17,745	17,619	18,012	18,009	17,218	16,735	16,082	15,879	14,728
28	17,886	17,918	18,467	18,448	17,666	17,188	16,389	16,189	14,966
29	18,276	18,162	18,612	18,681	17,981	17,667	16,699	16,383	15,316
30	18,796	18,363	19,126	19,071	18,364	17,897	17,018	16,662	15,773
31	18,999	19,089	19,366	19,263	18,788	17,941	17,681	16,939	16,168
32	19,386	19,318	19,688	19,573	19,014	18,384	17,885	17,167	16,427
33	19,518	19,685	20,133	19,781	19,461	18,739	18,171	17,663	16,677
34	20,089	20,132	20,360	20,283	19,795	19,147	18,662	17,843	17,084
35	20,672	20,677	20,576	20,636	20,182	19,552	19,060	18,276	17,361
36	20,881	20,888	20,933	20,982	20,466	19,856	19,436	18,660	17,633
37	21,211	21,097	21,114	21,076	20,673	20,218	19,818	18,864	18,006
38	21,644	21,396	21,676	21,269	21,119	20,625	20,142	19,160	18,316
39	21,781	21,686	21,909	21,786	21,364	20,965	20,646	19,617	18,646
40	22,062	22,097	22,312	21,978	21,666	21,178	20,739	20,077	19,138
41	22,429	22,391	22,753	22,334	21,967	21,396	21,081	20,375	19,439
42	22,736	22,777	22,995	22,736	22,198	21,933	21,372	20,627	19,683
43	23,145	23,083	23,287	23,067	22,525	22,189	21,698	20,836	19,963
44	23,696	23,398	23,668	23,586	22,938	22,513	21,966	21,036	20,192
45	23,827	23,683	23,894	23,978	23,448	22,777	22,225	21,273	20,419
46	24,188	24,073	24,364	24,261	23,948	23,082	22,511	21,623	20,683
47	24,642	24,481	24,788	24,726	24,239	23,324	22,743	21,868	21,015
48	24,988	24,985	25,154	25,086	24,677	23,883	23,083	22,219	21,239
49	25,267	25,366	25,436	25,286	24,768	24,142	23,386	22,643	21,513
50	25,570	25,777	25,669	25,649	24,993	24,446	23,963	22,988	21,736
51	25,988	26,009	25,856	25,825	25,297	24,615	24,288	23,160	22,068
52	26,397	26,468	26,288	26,062	25,676	25,087	24,517	23,364	22,662
53	26,988	26,664	26,737	26,444	25,888	25,389	24,966	23,612	22,719
54	27,253	26,988	27,013	26,719	26,264	25,574	25,265	23,969	22,972
55	27,649	27,276	27,363	27,183	26,673	26,086	25,676	24,158	23,196
56	27,991	27,578	27,724	27,437	26,736	26,256	25,813	24,388	23,391
57	28,166	27,982	28,188	27,913	27,089	26,643	25,887	24,668	23,787
58	28,473	28,266	28,387	28,283	27,279	26,738	26,073	25,199	23,998
59	28,761	28,579	28,752	28,588	27,573	27,136	26,364	25,389	24,661
60	29,146	29,082	29,066	28,788	28,086	27,636	26,655	25,586	24,787
61	29,582	29,516	29,388	28,976	28,367	27,688	27,073	26,211	25,082
62	29,798	29,821	29,566	29,283	28,691	28,171	27,369	26,356	25,286
63	30,196	30,282	29,891	29,664	29,166	28,383	27,927	26,911	25,743
64	30,617	30,566	30,169	30,086	29,488	29,081	28,288	27,138	26,135
65	30,974	30,838	30,589	30,369	29,882	29,425	28,562	27,384	26,682
66	31,326	31,157	30,758	30,788	30,376	29,737	28,998	27,766	27,088
67	31,641	31,586	31,068	31,068	30,837	30,116	29,282	28,288	27,661
68	32,068	31,868	31,266	31,428	31,266	30,386	29,784	28,613	27,868
69	32,364	32,282	31,775	31,781	31,688	30,833	30,123	28,987	28,166
70	32,733	32,596	32,148	32,096	31,868	31,288	30,618	29,447	28,611
71	33,068	33,079	32,778	32,398	32,288	31,748	30,618	29,739	28,987
72	33,388	33,368	33,288	33,116	32,438	32,088	30,918	30,168	29,237
73	33,686	33,784	33,626	33,466	32,888	32,271	31,366	30,437	29,566
74	33,866	34,088	34,196	33,888	33,266	32,768	31,618	30,666	29,816
75	34,286	34,336	34,444	34,286	33,563	33,073	31,817	31,288	30,111
76	35,087	34,668	34,962	34,586	34,066	33,488	32,316	31,361	30,518
77	35,536	35,688	35,466	35,139	34,566	33,738	32,826	31,993	31,067
78	35,933	36,035	36,085	35,479	34,871	34,063	33,166	32,382	31,366
79	36,385	36,661	36,388	36,188	35,488	34,361	33,566	33,077	32,132
80	37,158	37,271	36,956	36,728	36,021	35,061	33,888	33,499	32,437
81	38,131	37,686	37,339	37,169	36,733	35,544	34,438	33,888	32,668
82	38,748	38,168	38,079	37,648	37,187	36,086	34,869	34,279	33,068
83	39,361	39,288	38,621	38,317	37,488	36,726	35,364	34,779	33,623
84	39,977	39,792	39,228	39,087	37,798	37,279	36,083	35,263	33,963
85	40,585	40,536	39,685	39,584	38,385	37,686	36,798	35,686	34,669
86	41,156	40,999	40,301	40,456	38,988	38,388	37,488	36,486	35,295
87	41,987	41,669	41,067	41,086	39,579	38,960	38,065	37,514	36,016
88	42,351	42,318	41,988	41,885	40,262	39,588	38,673	38,782	36,611
89	43,139	42,853	42,786	42,563	40,952	40,778	39,662	39,888	37,375
90	43,746	43,672	43,284	42,886	41,636	41,572	40,728	39,686	38,364
91	44,367	44,288	43,612	43,686	42,397	42,225	41,366	40,881	39,086
92	45,227	45,668	44,887	44,367	43,399	43,133	42,232	41,798	40,286
93	46,682	46,656	45,897	45,453	44,882	44,186	43,099	41,825	41,063
94	47,663	47,678	47,063	46,415	45,988	45,178	44,437	43,874	41,682
95	48,915	49,882	48,286	47,665	46,865	46,131	45,472	44,889	43,586
96	50,251	49,896	49,383	48,813	48,010	47,228	46,583	45,214	44,212
97	51,689	51,778	51,185	50,127	49,522	48,845	47,962	47,148	45,588
98	53,837	53,688	52,798	52,965	51,717	50,998	50,087	49,228	46,262
99	57,866	57,635	57,261	56,683	55,621	54,962	54,238	53,618	52,884
100	72,864	71,579	71,081	70,683	69,439	68,886	67,716	65,972	64,614
Mean	36,492	36,326	36,513	36,364	35,738	35,269	34,568	33,774	32,867
Stdev	13,371	13,447	13,788	13,686	12,611	12,452	12,528	12,316	12,188

Appendix Table C-3b: Simulated annualized income ($M), Chapter C, Fixed Price Policy, Low Price Scenario, Brown Soils, Saskatchewan

Percentile	Ac = (ha)								
No	65	70	75	80	85	90	95	100	105
1	(26,375)	(25,719)	(23,913)	(21,642)	(20,668)	(20,266)	(19,687)	(19,687)	(20,334)
2	(21,743)	(21,000)	(20,273)	(19,482)	(19,283)	(19,087)	(18,679)	(18,303)	(18,644)
3	(20,197)	(19,366)	(18,886)	(18,459)	(18,057)	(17,887)	(17,668)	(17,357)	(17,588)
4	(19,198)	(18,647)	(18,112)	(17,752)	(17,278)	(16,773)	(16,719)	(16,618)	(16,662)
5	(18,575)	(18,068)	(17,275)	(16,831)	(16,468)	(16,086)	(16,163)	(15,939)	(16,086)
6	(18,025)	(17,601)	(16,886)	(16,296)	(15,871)	(15,399)	(15,378)	(15,260)	(15,437)
7	(17,602)	(17,228)	(16,361)	(15,787)	(15,437)	(14,978)	(14,897)	(14,736)	(15,143)
8	(17,378)	(16,902)	(15,930)	(15,273)	(14,913)	(14,529)	(14,437)	(14,585)	(14,888)
9	(17,067)	(16,468)	(15,436)	(14,758)	(14,692)	(14,264)	(14,257)	(14,312)	(14,333)
10	(16,782)	(16,062)	(15,145)	(14,687)	(14,278)	(13,992)	(14,082)	(14,191)	(14,265)
11	(16,236)	(15,729)	(14,923)	(14,282)	(14,082)	(13,662)	(13,778)	(13,866)	(14,160)
12	(15,923)	(15,365)	(14,613)	(14,088)	(13,688)	(13,444)	(13,462)	(13,668)	(13,887)
13	(15,661)	(15,061)	(14,361)	(13,766)	(13,444)	(13,269)	(13,287)	(13,489)	(13,680)
14	(15,411)	(14,813)	(14,137)	(13,526)	(13,266)	(13,088)	(13,099)	(13,262)	(13,474)
15	(15,151)	(14,586)	(13,777)	(13,319)	(13,080)	(12,913)	(12,985)	(13,183)	(13,388)
16	(14,883)	(14,286)	(13,525)	(13,088)	(12,828)	(12,761)	(12,829)	(12,867)	(13,112)
17	(14,682)	(14,069)	(13,269)	(12,869)	(12,687)	(12,616)	(12,685)	(12,869)	(12,811)
18	(14,386)	(13,866)	(13,168)	(12,881)	(12,587)	(12,511)	(12,646)	(12,866)	(12,673)
19	(14,066)	(13,766)	(12,958)	(12,486)	(12,286)	(12,279)	(12,387)	(12,486)	(12,523)
20	(13,778)	(13,518)	(12,709)	(12,414)	(12,122)	(12,088)	(12,131)	(12,211)	(12,288)
21	(13,586)	(13,315)	(12,488)	(12,221)	(12,086)	(12,066)	(12,018)	(12,182)	(12,263)
22	(13,336)	(13,136)	(12,461)	(12,097)	(11,862)	(11,887)	(11,988)	(11,997)	(12,144)
23	(13,183)	(12,826)	(12,286)	(11,886)	(11,728)	(11,887)	(11,822)	(11,870)	(11,979)
24	(13,064)	(12,688)	(12,081)	(11,666)	(11,488)	(11,449)	(11,726)	(11,788)	(11,826)
25	(12,969)	(12,576)	(11,861)	(11,386)	(11,411)	(11,472)	(11,682)	(11,666)	(11,786)
26	(12,756)	(12,389)	(11,666)	(11,419)	(11,388)	(11,382)	(11,368)	(11,469)	(11,368)
27	(12,622)	(12,223)	(11,333)	(11,316)	(11,175)	(11,186)	(11,296)	(11,299)	(11,486)
28	(12,491)	(12,075)	(11,439)	(11,226)	(11,072)	(10,996)	(11,197)	(11,083)	(11,288)
29	(12,261)	(11,966)	(11,261)	(11,033)	(10,989)	(10,885)	(10,963)	(10,985)	(11,168)
30	(12,118)	(11,766)	(11,199)	(10,951)	(10,795)	(10,849)	(10,823)	(10,779)	(10,989)
31	(11,987)	(11,589)	(10,953)	(10,787)	(10,689)	(10,516)	(10,691)	(10,694)	(10,862)
32	(11,726)	(11,483)	(10,828)	(10,584)	(10,358)	(10,317)	(10,567)	(10,528)	(10,743)
33	(11,599)	(11,383)	(10,716)	(10,443)	(10,383)	(10,186)	(10,363)	(10,386)	(10,683)
34	(11,391)	(11,166)	(10,618)	(10,386)	(10,149)	(10,085)	(10,188)	(10,238)	(10,516)
35	(11,387)	(10,961)	(10,336)	(10,213)	(10,016)	(9,967)	(10,095)	(10,115)	(10,388)
36	(11,216)	(10,886)	(10,622)	(10,096)	(9,861)	(9,861)	(9,918)	(9,996)	(10,117)
37	(11,061)	(10,688)	(10,271)	(9,937)	(9,767)	(9,783)	(9,766)	(9,838)	(10,011)
38	(10,996)	(10,569)	(10,096)	(9,918)	(9,643)	(9,632)	(9,616)	(9,636)	(9,896)
39	(10,732)	(10,443)	(9,738)	(9,784)	(9,686)	(9,518)	(9,676)	(9,699)	(9,776)
40	(10,613)	(10,366)	(9,784)	(9,543)	(9,378)	(9,353)	(9,352)	(9,321)	(9,497)
41	(10,498)	(10,212)	(9,617)	(9,397)	(9,218)	(9,166)	(9,188)	(9,118)	(9,476)
42	(10,387)	(10,068)	(9,432)	(9,389)	(9,099)	(8,991)	(8,966)	(8,995)	(9,333)
43	(10,278)	(9,988)	(9,298)	(9,188)	(8,977)	(8,855)	(8,868)	(8,865)	(9,213)
44	(10,095)	(9,748)	(9,128)	(8,977)	(8,819)	(8,695)	(8,618)	(8,729)	(9,094)
45	(9,885)	(9,638)	(8,976)	(8,781)	(8,669)	(8,596)	(8,685)	(8,657)	(8,966)
46	(9,717)	(9,448)	(8,763)	(8,667)	(8,493)	(8,469)	(8,378)	(8,366)	(8,836)
47	(9,638)	(9,264)	(8,633)	(8,384)	(8,267)	(8,297)	(8,327)	(8,483)	(8,698)
48	(9,498)	(9,118)	(8,443)	(8,269)	(8,188)	(8,179)	(8,088)	(8,287)	(8,543)
49	(9,338)	(8,998)	(8,317)	(8,218)	(7,987)	(8,081)	(7,883)	(8,102)	(8,451)
50	(9,146)	(8,736)	(8,288)	(8,099)	(7,883)	(7,839)	(7,662)	(8,066)	(8,386)
51	(8,987)	(8,612)	(8,116)	(7,984)	(7,682)	(7,667)	(7,336)	(7,976)	(8,287)
52	(8,784)	(8,388)	(7,996)	(7,879)	(7,382)	(7,388)	(7,661)	(7,887)	(8,127)
53	(8,688)	(8,401)	(7,888)	(7,737)	(7,615)	(7,371)	(7,387)	(7,788)	(7,961)
54	(8,561)	(8,218)	(7,661)	(7,566)	(7,398)	(7,226)	(7,192)	(7,516)	(7,769)
55	(8,436)	(8,088)	(7,497)	(7,366)	(7,166)	(7,081)	(7,064)	(7,483)	(7,598)
56	(8,365)	(7,988)	(7,396)	(7,263)	(7,083)	(6,988)	(6,966)	(7,299)	(7,661)
57	(8,286)	(7,777)	(7,387)	(7,119)	(6,872)	(6,882)	(6,876)	(7,139)	(7,388)
58	(8,076)	(7,666)	(7,178)	(6,932)	(6,739)	(6,764)	(6,788)	(6,968)	(7,256)
59	(7,893)	(7,518)	(7,086)	(6,736)	(6,688)	(6,673)	(6,886)	(6,823)	(7,118)
60	(7,725)	(7,399)	(6,877)	(6,642)	(6,566)	(6,578)	(6,588)	(6,738)	(6,976)
61	(7,574)	(7,271)	(6,738)	(6,588)	(6,443)	(6,479)	(6,577)	(6,682)	(6,873)
62	(7,482)	(7,173)	(6,611)	(6,386)	(6,353)	(6,488)	(6,383)	(6,663)	(6,779)
63	(7,283)	(7,088)	(6,525)	(6,363)	(6,282)	(6,488)	(6,367)	(6,363)	(6,673)
64	(7,167)	(6,988)	(6,481)	(6,113)	(5,883)	(6,148)	(6,127)	(6,381)	(6,578)
65	(7,089)	(6,761)	(6,288)	(5,995)	(5,873)	(6,089)	(6,019)	(6,092)	(6,421)
66	(6,988)	(6,577)	(6,188)	(5,867)	(5,766)	(5,961)	(5,885)	(5,999)	(6,351)
67	(6,723)	(6,476)	(6,012)	(5,887)	(5,626)	(5,826)	(5,735)	(5,976)	(6,138)
68	(6,589)	(6,338)	(5,913)	(5,737)	(5,511)	(5,681)	(5,614)	(5,753)	(6,012)
69	(6,418)	(6,179)	(5,796)	(5,688)	(5,483)	(5,638)	(5,467)	(5,668)	(5,896)
70	(6,298)	(6,067)	(5,652)	(5,437)	(5,383)	(5,511)	(5,353)	(5,670)	(5,776)
71	(6,127)	(5,938)	(5,525)	(5,318)	(5,088)	(5,136)	(5,281)	(5,383)	(5,662)
72	(6,019)	(5,851)	(5,417)	(5,177)	(4,985)	(4,997)	(5,061)	(5,256)	(5,438)
73	(5,869)	(5,718)	(5,287)	(5,077)	(4,766)	(4,868)	(4,886)	(5,112)	(5,262)
74	(5,628)	(5,538)	(5,063)	(4,981)	(4,573)	(4,669)	(4,667)	(4,864)	(5,082)
75	(5,486)	(5,388)	(4,833)	(4,767)	(4,376)	(4,488)	(4,478)	(4,666)	(4,837)
76	(5,327)	(5,183)	(4,679)	(4,588)	(4,288)	(4,386)	(4,281)	(4,486)	(4,638)
77	(5,188)	(4,988)	(4,438)	(4,384)	(4,079)	(4,183)	(4,141)	(4,388)	(4,387)
78	(5,066)	(4,776)	(4,176)	(4,076)	(3,982)	(3,966)	(3,918)	(4,211)	(4,362)
79	(4,831)	(4,582)	(4,011)	(3,982)	(3,771)	(3,757)	(3,783)	(4,081)	(4,169)
80	(4,672)	(4,286)	(3,816)	(3,677)	(3,527)	(3,686)	(3,660)	(3,863)	(4,086)
81	(4,488)	(3,988)	(3,665)	(3,363)	(3,191)	(3,362)	(3,387)	(3,686)	(3,814)
82	(4,283)	(3,713)	(3,212)	(3,199)	(2,986)	(3,093)	(3,166)	(3,323)	(3,501)
83	(3,866)	(3,367)	(3,081)	(2,867)	(2,783)	(2,873)	(2,976)	(3,147)	(3,382)
84	(3,647)	(3,277)	(2,667)	(2,583)	(2,683)	(2,589)	(2,738)	(2,912)	(3,166)
85	(3,366)	(3,062)	(2,371)	(2,388)	(2,311)	(2,372)	(2,456)	(2,717)	(2,911)
86	(2,965)	(2,788)	(2,173)	(2,066)	(2,096)	(2,263)	(2,281)	(2,396)	(2,717)
87	(2,751)	(2,458)	(1,916)	(1,838)	(1,885)	(2,066)	(2,052)	(2,183)	(2,336)
88	(2,437)	(2,115)	(1,565)	(1,538)	(1,698)	(1,738)	(1,831)	(1,968)	(2,366)
89	(2,016)	(1,788)	(1,226)	(1,258)	(1,377)	(1,457)	(1,619)	(1,665)	(2,128)
90	(1,613)	(1,295)	(988)	(956)	(878)	(956)	(1,277)	(1,362)	(1,888)
91	(1,256)	(1,101)	(663)	(589)	(622)	(992)	(839)	(1,113)	(1,663)
92	(838)	(663)	(364)	(277)	(196)	(364)	(636)	(856)	(1,066)
93	(389)	(139)	4	61	211	98	(285)	(588)	(738)
94	(2)	388	667	613	636	321	139	(186)	(387)
95	767	688	1,188	1,138	1,258	1,258	885	384	138
96	1,523	1,456	1,868	2,881	2,839	1,584	1,671	688	388
97	2,425	2,688	2,573	2,871	2,722	2,366	2,165	1,612	1,097
98	3,231	3,248	3,678	3,618	3,629	3,731	3,881	2,682	2,388
99	4,614	4,748	5,117	5,286	4,998	4,838	4,668	4,188	3,668
100	6,885	6,363	6,918	7,963	7,188	7,882	7,689	6,888	6,432
Mean	(9,885)	(8,678)	(8,188)	(7,867)	(7,671)	(7,638)	(7,666)	(7,836)	(8,894)
Stdev	5,844	5,761	5,888	5,454	5,363	5,218	5,186	5,883	4,975

Appendix Table C-35: Simulated Annualized Income ($M), Chapter C, Fixed Price Policy, Base Price Scenario, Brown Soils, Saskatchewan

Percentile No	60	70	75	80	Rp = (mm) 85	90	95	100	105
1	(13,594)	(12,668)	(12,088)	(11,688)	(10,668)	(10,086)	(9,672)	(9,778)	(10,046)
2	(9,661)	(9,138)	(9,132)	(8,284)	(7,967)	(7,996)	(8,010)	(7,691)	(8,262)
3	(7,434)	(6,956)	(6,779)	(6,376)	(5,952)	(6,219)	(6,399)	(6,514)	(6,662)
4	(6,138)	(5,360)	(5,153)	(5,009)	(4,706)	(4,729)	(5,002)	(5,474)	(5,388)
5	(5,013)	(4,665)	(4,215)	(4,214)	(3,836)	(3,389)	(3,916)	(4,057)	(4,049)
6	(4,536)	(4,100)	(3,673)	(3,235)	(3,166)	(2,783)	(3,307)	(3,166)	(3,990)
7	(4,001)	(3,364)	(3,078)	(2,360)	(2,431)	(1,916)	(2,693)	(2,780)	(3,195)
8	(3,329)	(2,665)	(2,262)	(1,993)	(1,619)	(1,668)	(1,826)	(2,087)	(2,367)
9	(2,837)	(2,268)	(1,673)	(798)	(966)	(967)	(1,383)	(1,660)	(2,127)
10	(2,683)	(1,832)	(1,053)	(278)	(698)	(614)	(765)	(1,156)	(1,772)
11	(1,761)	(1,223)	(662)	(7)	(173)	(31)	(458)	(839)	(1,625)
12	(1,177)	(661)	(78)	611	387	384	(288)	(662)	(1,201)
13	(632)	(368)	381	788	685	662	(39)	(438)	(999)
14	(387)	(8)	687	995	1,062	888	384	(188)	(743)
15	66	211	1,186	1,238	1,288	979	563	118	(661)
16	648	868	1,388	1,476	1,535	1,218	738	373	(126)
17	798	936	1,458	1,748	1,833	1,388	998	688	217
18	1,116	1,381	2,088	2,016	2,099	1,582	1,239	788	432
19	1,355	1,737	2,226	2,289	2,388	1,771	1,485	1,067	618
20	1,727	2,085	2,448	2,597	2,575	1,988	1,677	1,277	916
21	2,223	2,276	2,686	2,788	2,776	2,168	2,085	1,382	1,221
22	2,439	2,516	2,988	3,066	3,062	2,438	2,234	1,686	1,388
23	2,664	2,788	3,139	3,321	3,199	2,768	2,381	2,181	1,888
24	2,888	3,001	3,261	3,321	3,438	2,971	2,588	2,261	1,999
25	3,038	3,215	3,333	3,487	3,589	3,142	2,889	2,561	2,288
26	3,386	3,562	3,762	4,084	3,697	3,386	2,997	2,638	2,388
27	3,615	3,633	3,921	4,288	3,838	3,776	3,188	2,886	2,588
28	3,927	4,088	4,267	4,446	4,113	3,987	3,371	3,288	2,716
29	4,222	4,388	4,568	4,773	4,288	4,286	3,616	3,588	2,886
30	4,488	4,568	4,836	4,978	4,383	4,439	4,185	3,819	3,088
31	4,567	4,768	5,083	5,276	4,888	4,742	4,488	4,087	3,166
32	4,748	5,012	5,253	5,383	5,137	5,017	4,558	4,217	3,438
33	5,038	5,217	5,419	5,588	5,288	5,288	4,661	4,418	3,668
34	5,387	5,438	5,597	5,783	5,583	5,391	4,885	4,688	3,873
35	5,495	5,636	5,892	5,916	5,727	5,573	5,085	4,915	4,087
36	5,693	5,882	6,119	6,163	5,966	5,814	5,277	5,073	4,252
37	5,867	5,988	6,383	6,389	6,113	6,061	5,536	5,388	4,444
38	6,066	6,142	6,668	6,588	6,317	6,288	5,811	5,539	4,767
39	6,288	6,438	6,818	6,819	6,577	6,477	6,066	5,788	5,087
40	6,436	6,636	6,939	7,023	6,793	6,588	6,282	5,843	5,238
41	6,662	6,866	7,178	7,282	6,916	6,768	6,388	5,988	5,413
42	6,859	7,096	7,383	7,335	7,136	6,998	6,758	6,167	5,636
43	7,286	7,246	7,614	7,516	7,346	7,196	6,913	6,388	5,988
44	7,383	7,462	7,788	7,786	7,648	7,388	7,085	6,544	6,882
45	7,586	7,788	7,995	7,938	7,868	7,538	7,272	6,668	6,738
46	7,811	7,987	8,288	8,141	8,081	7,691	7,588	6,873	6,887
47	7,917	8,139	8,443	8,288	8,262	7,988	7,788	7,088	6,989
48	8,091	8,313	8,644	8,498	8,388	8,373	8,089	7,288	7,187
49	8,328	8,451	8,812	8,686	8,638	8,545	8,284	7,516	7,481
50	8,388	8,635	9,088	8,863	8,868	8,697	8,351	7,697	7,887
51	8,742	8,866	9,284	9,112	9,088	8,838	8,731	7,925	7,882
52	8,989	9,113	9,438	9,362	9,238	9,088	8,988	8,088	7,923
53	9,215	9,321	9,588	9,618	9,477	9,144	9,084	8,276	7,985
54	9,376	9,581	9,837	9,888	9,658	9,314	9,283	8,382	7,985
55	9,529	9,798	10,016	10,188	9,821	9,564	9,436	8,716	7,988
56	9,791	10,011	10,231	10,325	10,063	9,716	9,641	8,988	8,323
57	10,029	10,167	10,476	10,533	10,174	9,864	9,832	9,079	8,438
58	10,285	10,317	10,768	10,787	10,377	10,079	9,951	9,238	8,678
59	10,466	10,496	10,988	10,983	10,587	10,262	10,085	9,441	8,861
60	10,656	10,678	11,166	11,145	10,777	10,445	10,232	9,678	9,089
61	10,793	10,888	11,288	11,343	11,068	10,685	10,371	9,988	9,211
62	10,998	11,112	11,439	11,486	11,266	10,861	10,527	10,135	9,388
63	11,122	11,388	11,687	11,678	11,513	11,042	10,683	10,338	9,726
64	11,287	11,661	11,732	11,784	11,628	11,286	10,838	10,531	9,744
65	11,536	11,837	11,866	11,985	11,839	11,438	11,088	10,666	9,963
66	11,767	11,988	12,021	12,138	12,015	11,636	11,251	10,837	10,088
67	11,964	12,187	12,187	12,286	12,111	11,775	11,426	11,095	10,239
68	12,217	12,286	12,318	12,419	12,288	11,983	11,782	11,287	10,667
69	12,438	12,387	12,485	12,488	12,486	12,168	11,843	11,488	10,988
70	12,636	12,751	12,688	12,778	12,652	12,388	12,261	11,665	11,188
71	12,863	12,851	12,886	13,042	12,863	12,616	12,317	11,845	11,271
72	13,138	13,068	13,286	13,261	13,081	12,886	12,387	12,086	11,388
73	13,265	13,268	13,467	13,441	13,278	13,182	12,666	12,385	11,788
74	13,362	13,336	13,618	13,636	13,618	13,268	12,956	12,586	12,087
75	13,718	13,486	14,181	13,867	13,948	13,363	13,188	12,788	12,373
76	13,883	13,688	14,382	14,188	14,274	13,788	13,288	12,958	12,687
77	14,268	14,046	14,668	14,361	14,414	14,086	13,778	13,138	12,788
78	14,562	14,488	14,938	14,521	14,619	14,232	14,018	13,386	12,968
79	14,791	15,085	15,288	15,163	15,039	14,585	14,318	13,635	13,188
80	15,086	15,288	15,637	15,686	15,273	14,888	14,734	13,862	13,283
81	15,381	15,746	15,966	15,788	15,666	15,088	14,882	14,321	13,668
82	16,088	16,142	16,288	16,178	15,738	15,379	15,141	14,337	14,082
83	16,362	16,611	16,618	16,663	16,183	15,731	15,618	14,616	14,386
84	16,985	16,738	17,163	17,086	16,573	16,088	15,717	15,238	14,618
85	16,968	17,068	17,381	17,673	16,837	16,336	16,155	15,522	14,888
86	17,618	17,482	17,976	17,983	17,119	16,888	16,388	15,868	15,383
87	17,788	17,631	18,322	18,326	17,338	17,172	16,868	16,487	15,842
88	18,423	18,488	18,623	18,362	18,088	17,678	17,178	16,778	15,868
89	18,816	18,858	18,997	18,873	18,663	18,138	17,716	17,173	16,218
90	19,182	19,467	19,287	19,272	19,081	18,686	18,233	17,842	16,843
91	19,819	19,988	19,876	19,788	19,682	19,261	18,698	17,988	17,138
92	20,298	20,454	20,368	20,263	20,086	19,748	19,348	18,648	17,888
93	21,176	21,188	21,087	21,023	20,688	20,288	19,811	19,188	18,884
94	21,838	21,986	21,751	21,681	21,381	20,988	20,686	19,786	18,988
95	22,811	22,682	22,386	22,263	22,188	21,687	21,127	20,218	19,888
96	23,886	23,637	23,488	23,388	23,073	22,638	22,088	20,963	20,387
97	25,387	24,962	24,821	24,888	24,488	23,673	22,988	21,887	20,981
98	26,536	26,489	26,384	26,221	25,918	25,488	24,638	23,656	22,761
99	28,216	28,288	28,616	28,238	27,616	27,125	26,436	25,732	24,873
100	33,382	33,943	32,684	32,399	32,291	31,813	31,132	29,916	28,888
Mean	8,767	8,943	9,261	9,382	9,138	8,863	8,515	8,088	7,611
StDev	8,482	8,322	8,152	7,988	7,852	7,716	7,588	7,481	7,418

Appendix Table C-3b: Simulated Annualized Income ($M), Cluster C, Fixed Price Policy, High Price Scenario, Brown Soils, Saskatchewan

Percentile	Mg = (mm)								
No	65	70	75	80	85	90	95	100	105
1	(2,760)	(2,066)	(1,352)	(366)	(367)	(30)	285	(116)	(1,623)
2	2,279	2,696	2,109	2,999	3,385	3,819	3,699	2,885	1,619
3	4,957	5,063	5,277	5,536	6,009	5,365	4,384	4,436	4,178
4	6,712	7,614	7,166	7,352	7,321	7,390	6,656	5,773	5,771
5	8,163	8,688	8,879	8,278	8,417	8,752	7,968	7,673	6,738
6	8,707	9,393	9,751	9,618	9,997	9,386	8,967	8,868	7,665
7	9,632	10,429	10,791	11,069	10,988	10,954	9,996	9,674	8,609
8	10,636	11,265	11,968	12,098	11,339	11,639	10,993	10,376	9,613
9	11,289	11,914	12,174	12,954	12,378	12,266	11,519	11,259	10,081
10	12,087	12,452	13,073	13,669	12,938	12,706	11,992	11,680	10,546
11	12,625	13,114	13,844	14,165	13,372	13,213	12,442	11,966	11,188
12	13,669	13,879	14,429	14,675	14,087	13,869	12,939	12,383	11,556
13	14,167	14,386	14,896	15,180	14,689	14,282	13,272	12,697	11,866
14	14,762	14,733	15,560	15,661	15,123	14,588	13,643	13,091	12,086
15	15,133	15,169	16,083	15,936	15,636	14,910	13,996	13,369	12,384
16	15,668	15,691	16,438	16,311	15,899	15,139	14,383	13,388	12,665
17	16,138	15,997	16,711	16,539	16,258	15,383	14,562	13,849	12,987
18	16,560	16,726	16,965	16,836	16,681	15,688	14,999	14,167	13,262
19	16,963	17,086	17,298	17,149	17,011	15,939	15,369	14,618	13,586
20	17,319	17,366	17,586	17,439	17,211	16,293	15,674	14,868	14,102
21	17,598	17,698	17,960	17,679	17,619	16,696	15,968	15,137	14,579
22	17,868	18,025	18,305	17,977	17,728	16,911	16,267	15,739	14,973
23	18,323	18,432	18,864	18,369	17,958	17,218	16,588	16,211	15,389
24	18,598	18,749	19,636	18,680	18,154	17,636	16,895	16,539	15,736
25	19,053	19,165	19,931	18,915	18,642	17,927	17,439	16,712	15,966
26	19,485	19,463	19,262	19,686	18,873	18,444	17,782	17,063	16,238
27	19,819	19,757	19,676	19,786	19,197	18,796	18,025	17,631	16,637
28	20,136	20,074	20,131	20,139	19,668	19,083	18,295	17,738	16,888
29	20,595	20,397	20,693	20,561	19,997	19,259	18,675	18,090	16,961
30	20,818	20,644	20,815	20,917	20,078	19,688	18,967	18,339	17,383
31	21,037	21,018	21,064	21,229	20,641	20,139	19,268	18,586	17,988
32	21,487	21,419	21,436	21,665	20,734	20,668	19,575	18,939	17,851
33	21,723	21,788	21,753	21,713	21,088	20,672	19,866	19,287	18,056
34	22,098	21,977	22,017	22,097	21,252	20,833	20,097	19,666	18,219
35	22,334	22,225	22,264	22,216	21,560	21,015	20,282	19,753	18,617
36	22,663	22,360	22,674	22,515	21,618	21,192	20,533	20,094	18,738
37	22,717	22,586	22,814	22,694	22,067	21,636	20,861	20,338	18,995
38	23,066	22,963	23,118	22,963	22,284	21,774	21,084	20,512	19,312
39	23,414	23,336	23,452	23,185	22,578	22,096	21,395	20,663	19,660
40	23,628	23,763	23,761	23,389	22,797	22,338	21,761	20,876	19,987
41	23,953	24,046	23,996	23,696	23,023	22,751	22,098	21,225	20,175
42	24,209	24,286	24,222	23,976	23,297	23,012	22,219	21,386	20,357
43	24,393	24,537	24,488	24,138	23,526	23,325	22,643	21,639	20,644
44	24,763	24,777	24,715	24,364	23,852	23,566	22,958	22,010	21,072
45	25,041	25,052	24,957	24,643	24,262	23,763	23,225	22,148	21,316
46	25,261	25,295	25,238	24,943	24,652	24,027	23,588	22,425	21,607
47	25,536	25,484	25,515	25,223	24,950	24,351	23,985	22,670	21,768
48	25,778	25,732	25,841	25,462	25,299	24,697	24,215	22,907	21,963
49	26,099	25,966	26,125	25,838	25,531	24,996	24,398	23,132	22,117
50	26,489	26,238	26,336	26,286	25,788	25,122	24,665	23,412	22,331
51	26,688	26,513	26,706	26,399	25,966	25,484	24,946	23,737	22,691
52	26,797	26,731	26,998	26,709	26,178	25,638	25,195	23,956	22,962
53	27,086	27,019	27,262	26,963	26,366	25,833	25,460	24,224	23,227
54	27,368	27,372	27,436	27,256	26,610	26,035	25,647	24,475	23,386
55	27,628	27,578	27,668	27,517	26,895	26,279	25,945	24,738	23,626
56	27,861	27,784	27,860	27,738	27,115	26,498	26,068	25,123	24,056
57	27,999	28,068	28,104	28,066	27,366	26,728	26,232	25,311	24,263
58	28,272	28,267	28,525	28,444	27,658	27,018	26,580	25,679	24,499
59	28,665	28,567	28,799	28,669	27,863	27,388	26,835	25,936	24,799
60	29,065	28,838	29,079	28,967	28,105	27,538	27,167	26,125	25,096
61	29,216	29,149	29,336	29,153	28,361	27,861	27,338	26,353	25,368
62	29,488	29,326	29,693	29,368	28,715	28,099	27,698	26,668	25,668
63	29,623	29,567	29,788	29,516	28,952	28,298	27,909	26,825	25,938
64	29,817	29,848	29,928	29,711	29,267	28,588	27,996	27,125	26,157
65	30,133	30,107	30,077	29,952	29,651	28,686	28,261	27,287	26,368
66	30,479	30,309	30,262	30,168	29,879	28,879	28,478	27,777	26,581
67	30,788	30,732	30,416	30,479	29,968	29,198	28,767	28,188	26,860
68	31,026	31,048	30,664	30,663	30,179	29,438	28,998	28,364	27,172
69	31,338	31,376	30,861	30,919	30,660	29,761	29,281	28,591	27,461
70	31,587	31,532	31,175	31,115	30,738	30,261	29,619	28,881	27,776
71	31,768	31,727	31,496	31,433	31,088	30,533	29,861	29,165	28,128
72	32,206	32,056	31,882	31,765	31,281	30,906	30,032	29,442	28,527
73	32,557	32,426	32,269	32,025	31,388	31,216	30,338	29,784	28,904
74	32,799	32,723	32,474	32,284	31,567	31,478	30,713	30,018	29,286
75	33,193	33,040	32,642	32,564	32,336	31,773	31,088	30,263	29,612
76	33,625	33,304	33,062	32,921	32,642	32,016	31,446	30,538	29,867
77	33,852	33,643	33,490	33,306	33,044	32,258	31,738	30,727	30,087
78	34,176	34,060	33,904	33,696	33,366	32,686	32,087	31,066	30,388
79	34,643	34,736	34,457	34,171	33,788	32,817	32,398	31,359	30,512
80	34,993	35,099	35,218	34,728	33,988	33,164	32,881	31,799	30,798
81	35,376	35,484	35,588	35,068	34,371	33,648	33,098	32,221	31,138
82	36,017	35,966	35,868	35,483	34,766	34,061	33,631	32,733	31,673
83	36,662	36,389	36,363	36,083	35,173	34,388	33,980	32,989	32,182
84	37,074	36,893	36,798	36,795	35,575	34,951	34,388	33,292	32,699
85	37,488	37,211	37,456	37,262	36,068	35,261	34,861	33,866	32,706
86	37,967	37,661	38,066	37,927	36,436	35,883	35,264	34,463	33,132
87	38,432	38,303	38,686	38,336	36,962	36,498	35,796	34,899	33,546
88	39,013	38,979	38,988	38,658	37,603	37,087	36,208	35,451	34,062
89	39,723	39,688	39,637	39,918	38,438	37,646	36,778	36,091	34,389
90	40,378	40,312	40,088	39,966	39,451	38,230	37,799	36,679	35,082
91	40,968	40,863	40,398	40,365	40,087	39,069	38,312	37,083	35,864
92	41,883	41,766	41,381	41,172	40,986	39,911	38,938	38,021	36,373
93	42,683	42,519	42,618	42,082	41,798	40,782	39,888	38,788	37,238
94	43,897	43,644	43,962	42,736	42,830	41,388	40,728	39,587	38,693
95	44,827	44,598	43,851	43,643	43,181	42,550	41,686	40,586	39,452
96	46,388	45,931	45,219	45,179	44,788	43,656	42,991	41,314	40,676
97	48,173	47,518	47,366	46,631	45,986	45,388	43,736	42,366	41,488
98	50,892	50,022	49,574	48,983	48,285	47,178	45,682	44,343	43,457
99	52,128	52,097	52,176	51,365	50,133	49,290	48,398	47,337	46,868
100	58,985	58,888	57,373	57,267	56,097	56,109	55,070	53,196	51,675
Mean	26,543	26,560	26,595	26,474	25,935	25,380	24,730	23,906	22,899
Stdev	11,116	10,966	10,761	10,581	10,438	10,275	10,218	9,996	9,981

90 Working Paper # 1 - An Analysis of Wheat Supply Response Under Risk and Uncertainty